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THE ART

OF

CASE-TAKING.

LONDON
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OBSERVATION IN MEDICINE

OR

THE ART OF CASE-TAKING:

INCLUDING

A SPECIAL DESCRIPTION OF THE MOST COMMON THORACIC DISEASES, AND ABNORMAL STATES OF THE BLOOD AND URINE.

BY

JOHN SOUTHEY WARTER, M.D. EDIN.

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON.

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PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL,

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BY

THE AUTHOR.

PREFACE.

THE OBJECT with which this book is written is sufficiently indicated by its title. It is intended to supply to the working student such information as he is constantly requiring in his daily rounds, and to give him some hints as to the most common things he ought to observe. Care has been taken, by watching students in the wards, to find out the most common errors fallen into, and the best methods of avoiding these have in most cases been noted; but of course, in spite of this, a certain amount of practice is required before any student can expect to learn how to observe cases properly.

The method of arrangement adopted in the ensuing pages is the following. At the beginning a formula has been given to show how cases may be taken, but this of course may be altered to suit a physician's or clerk's particular fancy. Annexed to this is also a list of the principal things to be observed when a patient is in a fit, as I have found many students puzzled as to what to observe under such circumstances. In the ten chapters following, some of the most common symptoms noticed under each system have been described, and hints of various methods of examination, &c. have

here and there been introduced. It has been thought better, as an aid to the clerk's memory, to head each chapter with *all* the symptoms to be observed under that division or system, instead of only mentioning those points about which some detail is given. The last four chapters are devoted to the most common diseases of the heart and lungs, and abnormal states of the blood and urine.

The method of 'systems' has been adopted for two very simple reasons: because it is an aid to the memory, and in accordance with common sense. In the digestive system, for instance, it is very natural, seeing a dirty tongue, to enquire of the state of the appetite, &c., and then proceeding downwards to investigate the state of the whole alimentary canal. Nothing can be more vague than many notes I have seen taken, —the clerk rushes wildly from sleep to the state of the bowels; and notes the character of the pulse, in connection with the patient's history. Should a system be investigated and nothing be found wrong, the word *normal* may be written after it; or should anything wrong be detected, this may be mentioned, and then the words *otherwise normal* be added to complete the system. Systems may be taken in any order, but it is most convenient to begin with the one in which the disease exists, and then to pass on to the others that are most implicated.

I would most earnestly entreat the student to remember that although certain symptoms—as expression of face or posture—are generally characteristic of certain diseases, that in some cases these symptoms may be absent, or even altogether replaced by others. The

skill of a medical man consists in noting *every* symptom, and not any *one* in particular; and then having collected all the facts of the case, he is able to arrive at a conclusion from the comparison of the whole together.

The daily use of anatomy, physiology, and common sense, at the bedside, would, if it were properly used, teach a student almost half medicine: thus, for instance, in *mitral regurgitation*, or *obstruction at the mitral orifice*, a block occurs to the circulation entering freely the left side of the heart. Anatomy teaches us that the blood comes to this part from the lungs, and then common sense comes to our aid and tells us that the lungs will be congested. At this point the application of physiology teaches us that no congested organ performs its work properly, and so we expect, in consequence, cough, dyspnœa, &c. Following the same line of argument, we shall look for congestion of the vessels of the liver and stomach, and hence derangement of their functions, and sickness, &c. will occur. Passing farther downwards we find the whole portal circulation becoming retarded, and hence common sense will teach us to look for effusion into the abdominal cavity. Finally the whole systemic circulation becoming involved, œdema and anarsaca must necessarily occur.

The method of learning which I have found to be of most advantage, is to pay special attention in the wards during the day to one case,—as say a case of pneumonia,—and then at night to read up the subject carefully in some good book, as 'Watson's Practice of Physic.' A clerk will find it advantageous to perform auscultation, &c. of a patient by himself, without any aid

from the physician. This note of investigation should be separately kept, and compared with the results of the examination made by the physician himself. Finally, on this point, when told to listen to a sound, and being asked afterwards, 'If it was heard?' say boldly out whether it was or not, even if your opinion differs from that of the physician. Be ready always to admit your own dulness of hearing or stupidity; but telling an untruth, to say nothing of its being wrong, will make you always lack confidence in your own powers of observation.

I have thought it advisable to introduce diagrams in the chapter on 'Diseases of the Heart,' as the subject of *murmurs* seems to puzzle many students. It must however be remembered that they are purely diagrammatic, and only devised for the purposes of teaching. Drawings of the microscopic appearance of some of the deposits in urine have also been introduced, and these have been mostly sketched from actual specimens of my own. One of the forms of 'phosphates'—the envelope one—is, I fancy, rare, for I have only met with it once in my researches. As I have been for the most part throughout these pages my own draughtsman, I must beg my reader's indulgence for any errors he may detect in the illustrations. They have been admirably engraved by Mr. Joyce, of Bolt Court. I cannot but fear that in compiling these remarks some important points have been here and there omitted; and I must hence beg my reader to overlook any such errors which he may detect in the following pages.

One great difficulty I have found in writing these pages, has been to avoid going too much into detail,

and yet not to omit any of the most common symptoms that ought to be observed. My endeavour has been to write enough to *interest* the student, not enough to *tire* him; and for more details of the subjects treated on I would refer him to other works, especially to the chapter on the symptoms and signs of disease in Hooper's 'Physician's Vade Mecum;' to Dr. Bennett's 'Introduction to Clinical Medicine;' to Dr. Beale's work on the 'Urine;' and to the larger treatises of Drs. Watson and Aitken.

In conclusion, I have only to convey my sincere thanks to all the authors from whose labours I have profited; especially to the teachers both of Saint Bartholomew's Hospital, and of the University and Infirmary of Edinburgh, for the many opportunities that they have so kindly given me, of profiting by their teaching and experience.

JOHN SOUTHEY WARTER.

41 Queen Anne Street,
Cavendish Square.

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OBSERVATION IN MEDICINE.

INTRODUCTORY HINTS.

In taking cases, put down symptoms as they are, not as they ought to be to agree with books or systematic teachers; and after each daily note write down carefully the treatment employed.

Before commencing to examine a patient, ascertain by observation if he is sufficiently well to bear the fatigue of it: if in doubt take such notes as can be taken without disturbing him, and leave any further examination to the judgment of his physician. A fever patient if sleeping should never be awaked without good reason, for in nine cases out of ten of this kind sleep is better than the doctor.

Remember always that a patient is a fellow-creature, and s to be treated accordingly; a few kind words spoken before going regularly into a case will often make the difference of a clerk's daily visit being looked forward to with pleasure, instead of being a dreaded occurrence.

During the examination of a patient many questions must be asked negatively to gain even a suspicion of truth; as an aid to ascertaining the latter, attend to the face as well as to the oral expressions of a patient, in testing tenderness, etc., and always keep an eye open for imposture and hysteria. Questioning is also often best performed by giving the patient an alternative; as, for instance, 'Is your appetite good or is it bad?' By this method a patient does not feel forced to say 'yes' to everything.

METHOD OF TAKING CASES.

Name, Age, and Date of Admission.

General Appearance.

Nourishment—Posture—Expression of Face—Eyelids—Eyes—Conjunctivæ—Pupils, &c.—(Chapter I.)

Digestive System.

Mouth—Lips—Gums—Teeth—Odour of Breath—Tongue—Appetite—Thirst—Nausea and Vomiting—Character of Vomit—Bowels—Motions—Abdomen [liver, spleen, tumours, &c.]—(Chapter II.)

Urinary System.

Dysuria—Quantity passed in Twenty-four Hours—Colour—Smell—Acidity—Specific Gravity—Deposit—Chemical and Microscopical Examination alone and combined [albumen, casts, blood, sugar, and bile]—(Chapter III.)

Genital System.

Catamenia—Disorders of the Organs of Generation in both Male and Female—(Chapter IV.)

Respiratory System.

Alæ Nasi—Discharge from Nares—Character and number of Respirations—Voice—Throat—Cough—Expectoration—Physical Examination of Chest[1] [Inspection, measurement, vocal vibration and expansion as tested by the hand, percussion, natural breathing, forced breathing, cough if necessary, voice, and unnatural loudness of conducted heart sounds]—(Chapter V.)

Circulatory System.

Pulse [frequency, character, state of hardness of the arterial coats, equality or otherwise of the two radials, visible pulsations]—Heart [inspection, point of apex beat, extent and character of impulse, area of dullness, friction, murmurs, their situation and track]—Large Vessels [inspection, increase of extent of dullness, impulse, pulsations, murmurs]—(Chapter VI.)

Integumentary and Glandular System.

Skin [moisture and roughness, odour, colour, œdema, scars and eruptions]—Glands and Lymphatics [swelling and redness]—(Chapter VII.)

Nervous System.

Cerebral [intelligence, vertigo, stupor, coma, sleep, dreams, delirium, hallucinations, cephalalgia]—

[1] Auscultation of the lungs and heart may be done at any time most convenient, but the result should be recorded under each respective system.

Special senses—Spinal and Cerebro-spinal [spasm including convulsions, subsultus, floccitatio, rigidity and contraction of muscles, paralysis]—(Chapter VIII.)

Complaints.[1]

(CHAPTER IX.)

History.

Business — Married or Single — Children — Place of Abode—Habits—How long Illness commenced and circumstances attending it—Medical Attendant—Any previous attack of the same or any other illness—Health and Age of Parents and other Members of the Family—Fever, &c. in the neighbourhood—(Chapter X.)

METHOD OF TAKING A CASE WHEN THE PATIENT IS IN A FIT.

Posture.

Screaming, sobbing, &c., and variety of breathing.

Aspect [dusky, changeable, or otherwise].

Eyelids [whether open, closed, or tremulous].

[1] Having once learnt what to observe, the clerk will soon be able to shorten his notes, only taking the necessary points of any case. It is a good plan, after the first day's note, to commence each daily record with whether the patient has slept or not, as this will modify a good deal the value of any symptoms that are then recorded.

Eyes [whether bloodshot, anæmic, or œdematous, and whether fixed, staring, or squinting].

Pupils [whether equal, unequal, dilated, or contracted, and whether they act with light].

Mouth [whether drawn to one side or otherwise, and whether filled with froth or blood].

Tongue [whether bitten, or livid, or held between the teeth].

Smell of Breath [whether spirituous, or ammoniacal, &c.].

Convulsions [character and strength, and whether unilateral or otherwise].

Paralysis and Rigidity [whether present or absent, if present state what parts of the body are involved].

State of Skin [hot, dry, sweating, anasarcous, &c.].

Pulse and Heart.

Urine[1] and Motions [whether passed involuntarily].

Sensibility [total absence[2] of, or otherwise].

[1] Always see if the bladder is distended, and if necessary have the urine drawn off.

[2] This has been put last, as having taken so many other points the clerk will have had an opportunity of discovering imposition if it is practised.

CHAPTER I.

GENERAL APPEARANCE.

NOURISHMENT—POSTURE—EXPRESSION OF FACE—EYELIDS—EYES—CONJUNCTIVÆ—PUPILS, ETC.

Nourishment.

In testing the nourishment of a patient the best guides are the arms and abdomen, the face being often deceptive.

Posture.

Posture is of great importance. Thus in coma we find the posture generally dorsal, the patient being insensible and his lips and cheeks puffing out during expiration. Posture so as to avoid light, may be either indicative of some disease of the eye, or of some acute cerebral disease. In spinal and cerebro-spinal diseases, posture, as opisthotonos, emprosthotonos, &c., is almost diagnostic. The sitting or semi-recumbent posture with the head propped up by pillows, is generally indicative of advanced heart disease, or of some severe pulmonary affection [*see* chap. xii.]. In peritonitis, &c., where pressure increases the abdominal pain, the patient lies with his knees drawn up so as to relax the muscles of his abdomen.[1] This is also the posture of pelvic cellulitis, but in this, if the knees are bent straight, the back arches up. In inflammation of the abdominal viscera, the posture is often on the side where the organ is situated so as to avoid stretching its attachments. In colic, and sometimes in the passage of a

[1] Of course this posture should not be noted as of any importance until the patient has been asked whether it is the easiest one he can assume; this remark applies to many other postures.

gall-stone, we find the patient pressing his abdomen to ease the pain, the posture thus differing greatly from that of peritonitis, where the least touch is agony. In the posture of exhaustion as seen in the latter stages of fever, the patient lies helplessly on his back, sinking down towards the bottom of the bed; hence lateral posture is a favourable symptom as far as it goes in exhausting diseases, as it shows a patient has some little strength remaining. Absolute stillness of a patient when awake, the posture being dorsal, is generally indicative of acute rheumatism.

Expression of face.

Expression of face or aspect is very various in disease. The maniac has a fierce wild expression, the melancholiac a deep desponding one, both contrasting strongly with the vacant look and purposeless smile of the idiot or demented. In delirium tremens the face is suspicious and its movements rapid and expressive, the patient often talking with his face as well as with his lips. In phthisis the wasted face, prominent cheek-bones, and hectic flush, tell their own tale. In pneumonia we find an herpetic eruption on the lips, and the cheeks are flushed and perhaps dusky, but the eyes are not injected. In emphysema and chronic bronchitis we find the lips quite blue from imperfectly aerated blood, and the face dusky from the same cause; and in morbus cæruleus the whole surface is more or less tinged with a dusky purple. In morbus cordis we often find the capillaries of the cheeks dilated and injected, a symptom generally diagnostic of disease somewhere in the arterial system. Pericarditis may often be suspected from the intensely anxious expression of a patient's countenance, apparently in expectation of instant death. In peritonitis the aspect becomes pinched and ghastly, and the sunken eyes have a dark halo round them. In typhus the face is congested and dusky, the aspect dull and heavy, and the eyes injected. In typhoid fever the skin of the face is often clear and white, with a bright pink flush on the cheeks, and later on a dark

halo appears under the sunken eye, so characteristic of abdominal disease. In diabetes the dry harsh skin and lips, and the hollow cheeks, are almost characteristic. In acute rheumatism the white glistening waxy or perspiring face, the white sclerotic, dilated pupils, and bright red lips, are often diagnostic; though the latter symptoms occur in some other diseases. Chronic Bright's disease may often be diagnosed by the pallid pasty face and lips, and the pearly glistening sclerotic, watery as if coated with tears (owing really to an œdematous state of the ocular conjunctivæ). The pale white skin and delicate pink blood-vessels of anæmia, and the yellow cachexy of advanced cancer, are too well-known to be described. In jaundice the whole surface is yellow; and lastly in hysteria (so well described by Dr. Chambers) 'the eyeballs are large, the sclerotic blue and transparent, the pupils dilated, the conjunctivæ smooth and bright, the eyelashes long and veiled, and the eyelids large, tremulous, and full at the outer canthus, giving to the face a drooping longing expression.' Any anxiety in the countenance should always be made a note of; its value is often great, especially in typhoid fever, pneumonia, and some other diseases.

Eyelids.

Eyelids may be œdematous, diagnostic generally of local disease, erysipelas, or morbus Brightii. One may be dropped owing to paralysis affecting the levator palpebræ muscle. In paralysis where the third nerve is involved, the eyelid is dropped (ptosis), there is external squint, and dilated pupil on the side affected. Internal squint results from paralysis affecting the sixth nerve.

Trembling eyelids (best seen when the patient closes them) are either diagnostic of hysteria or extreme nervous debility. Long eye-lashes in conjunction with other symptoms may be diagnostic of the strumous diathesis. A dark halo under a sunken eye generally indicates some abdominal mischief.[1]

[1] This dark halo is seen in peritonitis, typhoid fever, &c., and is said to be present in women during the catamenial flow

Eyes.

Eyes when prominent and staring, apparently out of their sockets, indicate exophthalmos; often conjoined with an enlarged thyroid and anæmia. Injected eyes occur in typhus, in catarrh, in the ophthalmiæ (rheumatic, &c.), in some cases of cerebral diseases, and occasionally in mania.[1] Squints may be congenital, or dependent on cranial disease, or reflex, as seen in disturbances of the catamenia, &c.

Conjunctivæ.

The conjunctivæ may be œdematous, the eyes looking as if filled with tears from serous infiltration of the cellular tissue; this is generally characteristic of renal disease.[2] In jaundice the conjunctivæ are yellow, being more or less tinged with bile. A blue transparent tint in the sclerotic often accompanies some purulent drain on the constitution, as empyæma, pelvic abscesses in women, &c. &c.

Pupils.

The pupils may be equal or unequal, dilated or contracted; often diagnostic of cranial disease, thoracic aneurism, or some disease involving the cilio-spinal region.[3] When symptoms of a fatty heart are present, the appearance of a well-marked arcus senilis adds another weight to the idea of this being a correct diagnosis.

[1] It should be remembered that when a patient has just waked up from sleep, the eyes and face are naturally congested.

[2] Easily diagnosed by pressure, altering the position of the apparent tear; no water escaping from the eye.

[3] In order to test whether a patient's pupils are unnaturally contracted or dilated, it may sometimes be of use to turn a healthy person's head into the same position as regards light as the patient's, and then to judge comparatively by the size of his pupils. The cilio-spinal region extends from the seventh cervical to the second dorsal vertebra.

CHAPTER II.

DIGESTIVE SYSTEM.

MOUTH—LIPS—GUMS—TEETH—ODOUR OF BREATH—TONGUE—APPETITE AND THIRST—NAUSEA AND VOMITING—CHARACTER OF VOMIT—BOWELS—MOTIONS—ABDOMEN (LIVER, SPLEEN, TUMOURS, ETC.)

Mouth.

THE mouth may be drawn awry by paralysis general or local, and is often alone diagnostic.[1]

Lips.

Lips covered with sordes are generally diagnostic of a typhoid state of the system; this state is most commonly seen in typhus and typhoid fever, but may occur in any disease. Bright red lips are most often seen in cases of acute rheumatism, but may be seen also in typhoid fever, phthisis, and tonsillitis. In anæmia arising from any cause, the lips are pale and bloodless. Blue lips are generally diagnostic of chronic bronchitis and emphysema, morbus cæruleus, or some severe disease in the chest. Herpes on the lips, plus hurried breathing and a flushed face, generally indicate pneumonia; but herpes also occurs in bad catarrh. Lips are often aphthous towards the close of life in exhausted patients, and this state also occurs idiopathically in children. In scurvy the lips are often cracked, swollen, and bloody.

Gums

The state of the gums often aids us in diagnosis; thus in lead-poisoning we find them marked with a blue line, running along their dental

[1] To avoid fallacy in this, see that the patient's teeth are equal on both sides.

margins.[1] In salivation the gums are spongy and swollen; and in scurvy and purpura they are also swollen, dark, and bleed easily. In early phthisis the dental edge of the gums is said to be of a brighter tint than the other parts of them; and in diabetes the gums shrink from the teeth, which thus appear to be longer than natural.

Teeth.

Teeth may like the lips be covered with sordes in typhoid states of the system; and they become loose in scurvy and salivation. In congenital syphilis, they are small, smooth, rounded, and peg-shaped, or notched and tuberculated at their points. In scrofula the corners of the teeth are not rounded, nor do they taper to a point; but their enamel is decayed more or less, and their edge is rugged. Grinding of the teeth is generally indicative of cranial disease, or of some reflex irritation often intestinal, as worms.

Odour of Breath.

The odour of the breath is sometimes characteristic, as in diabetes, where it has a faint sweet smell like hay or apples. In gangrene of the lung the breath is peculiarly fœtid and earthy, like wet mortar; later on this smell may change into the more agreeable odour of violets. In bronchitis also the breath may be fœtid and almost fæcal, and then its odour change suddenly to that of may flowers or apple blossom.[2] In deep intoxication simulating apoplexy, the odour of spirits in the breath may sometimes aid a diagnosis. Foulness of the breath accompanies dyspepsia, cancer of the upper part of the digestive track, scurvy, caries of the teeth, and decomposing secretions in the mouth, stomach, or lungs.

Tongue.

In debility, the tongue is large, clean, flabby, tremulous, and indented with the teeth.[3] In the first stage of fever, in most inflammations,

[1] Bismuth and some other metals are said to give this.

[2] Owing to compounds of butyric and acetic acids with ethyle.

[3] In looking at the tongue it is as well to keep in remembrance the medicines

and often in dyspepsia, it is covered with a white creamy fur.[1] In quinsy and acute rheumatism especially this fur is thick, white, and creamy. In typhus the tongue is generally furred white in the beginning, but later on the central part begins to dry up and get brown, and then the whole tongue, in bad cases, becomes black and dry as a board; it is then difficult or even impossible to protrude without being first moistened, and even then the patient seems often to deliberate before putting it out when asked to do so.[2] In typhoid fever the tongue is covered with a white fur, but is red at the tip and edges; later on, a red streak appears down the centre, and this red streak soon becomes glazed, dry, and fissured, the bottom of the fissures being deep red; the fur is generally brown or yellow-brown, and the tongue, if dry, is more often red and glazed than in typhus. In diabetes the tongue is often abnormally red and beefy. In scarlet fever the tongue generally presents the white or red strawberry character; in both of these the papillæ are prominent, but in one they are seen standing out through a white fur, while in the other they simply project from a red tongue. Longitudinal deep fissures in the tongue have been noticed to be often associated with oxaluria. In abdominal diseases the tongue varies; but it is often abnormally red, or slimy smooth and of a whitish colour in the centre, as if coated with isinglass.

Aphthæ occur on the tongue towards the end of exhausting diseases.

In chorea the tongue when asked for is protruded suddenly, and then as suddenly retracted, its muscles partaking of the general choreic movements. In delirium tremens the tongue

patients are taking, as iron, &c., and also to look out for its being stained by liquorice, black currants, and other articles of diet.

[1] Dr. Bennett calls a dirty tongue 'coated' if smooth, and 'furred' if rough. When the fur is breaking up, the tongue almost always begins to clean at the edges.

[2] This slowness to receive and react upon impressions is very common in typhus, and in other diseases where nervous sensibility is impaired.

is moist, tremulous, and coated with a white creamy fur. In hemiplegia the tongue is generally protruded towards the paralysed side, owing to the preponderating force of the healthy genio-hyo-glossus muscle.[1]

Appetite.

Appetite both for food and drink is much increased in diabetes. In hysteria it is sometimes perverted, and hence 'pica' (a fancy for strange substances as slate-pencil, &c.) arises. In most acute diseases and fevers the appetite for food vanishes, but that for drink is greatly increased.

In phthisis pulmonalis there is generally an abhorrence of fat, and hence the oleaginous principles of food are not properly supplied for healthy nutrition. In mesenteric disease, and in many cases of irritation of the stomach and intestines (especially from worms), the appetite is voracious.

Nausea and vomiting.

Nausea and vomiting may occur from some affection of the stomach or œsophagus; or may be sympathetic, depending on irritation elsewhere, as in the brain, lung, liver, or uterus, or from the passage of gall-stones, renal calculi, &c.[2] In cerebral vomiting there is little or no nausea, but the stomach refuses to retain anything introduced into it, emptying itself at once without effort; headache also occurs before the sickness comes on, and the tongue is often clean, and the bowels obstinately confined.

In gastric or hepatic vomiting there is generally nausea, and much retching with the sickness which gives temporary relief; the tongue is often foul, the conjunctivæ dirty or bile-stained, and diarrhœa or pain in the abdomen is present; headache, if there is any, comes on after the gastric symptoms are developed. Sickness is often present in advanced morbus

[1] Sometimes from loss of teeth the tongue may not be protruded centrally, and hence in doubtful cases it is as well to look for this possible source of error.

[2] In taking notes of vomiting, ascertain the time of its occurrence; if after food, or not; and if so, how long after.

cordis, and in chronic Bright's disease; and incessant retching is sometimes a symptom of pericarditis. Vomiting of a thin watery fluid, sometimes acid, and often insipid, is diagnostic of pyrosis. Sickness or nausea often occur as premonitory symptoms of the exanthemata, and severe vomiting and pain in the back are generally the forerunners of smallpox, or erysipelas.

Character of vomit.

Vomited matters sometimes become covered with a head and ferment like yeast; if some of this head be examined with the microscope, sarcina may be detected. Hæmatemesis is generally diagnostic of gastric ulcer, congestion or cancer of the stomach, vicarious menstruation, or obstruction to the portal circulation, as in cirrhosis, &c.; blood that comes from the stomach is vomited and not coughed up, and is generally clotted and blackened by the action of the gastric juice on it; if much escapes into the stomach, the patient often feels faint before the blood is brought up.[1] Coffee-grounds vomiting late on in chronic diseases is generally prognostic of speedy dissolution. In some cases of dilated stomach vomiting only occurs every two or three days, immense quantities of food being then brought up. Regurgitation of food often takes place in affections of the œsophagus. Grass-green vomit in peritonitis is generally of fatal omen.

Bowels.

Enquire how often the bowels are open daily, and whether they are loose or confined, also whether tormina or tenesmus are present during their action.

Motions.

The character of the motions often aid us greatly in forming a diagnosis.[2] In jaundice they are of a light clay colour, and intensely fœtid in smell

[1] Always see the blood for yourself, or you will be sure to mistake bleeding gums and hæmotysis, &c. for hæmatemesis; remember also that epistaxis may simulate it, from the blood having been swallowed before it is vomited up.

[2] The motions should always be inspected at the commencement of a case, and if necessary, as in typhoid fever, dysentery, &c., inspected every day.

from absence of bile. In typhoid fever the stools are quite liquid when passed, and of a yellow-ochre colour; after having had time to settle, the top of the motion is found to be fluid, the gritty yellow ochrey sediment having subsided to the bottom of the vessel; more or less blood may also be present in the motion. In dysentery the stools are found to consist of more or less slimy mucus and pus, mixed with blood and shreds of exudation; in advanced cases the stools are pultaceous, and their odour is not fæcal but one sui generis; scybala may now and then be passed, and large sloughs of exudation may come away. When retained fæces have been the cause of intestinal irritation, scybala, coated with mucus and perhaps a little blood, may come away and aid a diagnosis. Blood acted on by the alvine secretions becomes black; hence tarry stools (melæna) indicate hemorrhage somewhere into the intestinal track.[1]

Fluid blood in the stools may come from hæmorrhoids, as well as from other sources higher up in the intestine. Green stools may be caused in children by the excessive use of mercury, and large doses of mineral acids are said to cause green stools in adults. In troublesome constipation with pain, it is as well to look at the margins of the gums for the chance of finding marks of lead poisoning; obstinate constipation also occurs commonly in diabetes. Recollect that constipation is only a relative term; and that if a patient eats nothing, but little fæces will be formed to pass away from him. Never forget in cases of abdominal obstruction to search the rectum for impacted fæces, and to look out for herniæ.

In cases of sickness, pain in the abdomen, diarrhœa, and other disturbances of the alimentary canal, enquire the patient's occupation, as all the symptoms may be due to arsenic, or to some irritant poison having been taken into the system.

[1] Remember that iron causes the motions to assume a black colour.

Abdomen.

One of the most convenient arrangements of the abdomen and thorax into regions, is that of Mr. Paxton, of Oxford (Aitken). By this method the body is divided into belts by six horizontal lines, and these belts are subdivided into smaller spaces by eight vertical lines. The horizontal lines are situated thus:—One around the chest at the level of the clavicles; one around the chest at the level of the third rib, touching the inferior borders of the scapulæ behind; one around the chest at the level of the ensiform cartilage; one around the abdomen at the level of the twelfth rib; one around the abdomen at the level of the anterior superior spines of the ilia; one anteriorly following the course of the two ligaments of Poupart. The vertical lines are thus arranged;—one on each side anteriorly stretching from the acromial end of the clavicle to the spine of the pubes; one along the middle of the sternum; one along the spines of the vertebræ; one along the spinal border of each scapula, stretching from the transverse clavicular to the transverse mammary line; one on each side dropping vertically downwards, from the posterior margins of the axillæ. The anterior regions thus mapped out are nine in number, namely, from above, downwards;—the right and left supra-clavicular; the right and left infra-clavicular; the right and left mammary; the epigastric, umbilical, and hypogastric regions. The lateral regions are ten in number, namely, from above, downwards;—the right and left axillary; the right and left infra-axillary; the right and left hypochondriac; the right and left iliac, and the right and left inguinal regions. The posterior regions are twelve in number, namely, from above, downwards;—the right and left supra-spinous; the right and left infra-spinous: the right and left inter-scapular; the right and left infra-scapular, or upper dorsal; the right and left inferior dorsal; and the right and left lumbar regions. The means used in investigating abdominal diseases are, generally, *inspection*, *palpation*, *percussion*, *and*

auscultation.[1] Large superfical blue veins, extending from the abdomen to the chest, are generally indicative of some obstruction to the return of blood through the inferior vena cava.[2] Diseases giving rise to enlargement of the liver generally cause a fullness in the right hypochondrium; those affecting the spleen in the same manner cause a fullness in the left.[3] Central enlargement from the pubes upwards is generally due to a distended bladder, or to pregnancy. In ovarian dropsy the swelling is lateral at first in one or other of the iliac regions; whereas in ascites the swelling is uniform, or only most marked on the depending side, from gravitation of the fluid. In colica pictonum the abdomen is generally hard and drawn spasmodically inwards towards the spinal column, its muscles being drawn into lumps and knots. In typhoid fever the abdomen is tub-shaped; convex from side to side, and not from above downwards. *Palpation* is used in several ways;—either by kneading the abdomen alternately with first one and then the other hand; or by making sudden short downward pressure, so as to detect any solid body by the resistance offered by it to the fingers; in another method one hand is placed behind the back of the patient, and the other in front of his abdomen, and thus the presence of any solid

[1] Before uncovering the abdomen of a woman, always ascertain if she is *unwell*, as of course, if so, its exposure must be deferred until the patient has ceased menstruating.

[2] Notice which way the blood is flowing; as, if the superior vena cava is obstructed, it may be flowing downwards, so as to get access to the heart from below upwards through the inferior vena cava. To ascertain this point: if a vein be compressed with one finger, and the blood be then squeezed out of it for about a length of two or three inches with another, so as to enclose an empty portion of vessel between the two compressed points; it may be easily seen in which position the blood flows quickest, by taking off alternately the pressure from one or other spot.

[3] In diseases of these organs, the blood should always be examined microscopically (see Chapter XIV). The normal vertical dullness of the liver is, two inches on the left of the ensiform cartilage, three inches in the hepatic region anteriorly, and four inches in the right lateral hepatic region; its upper border generally corresponds with the fifth rib, and its lower border to the margin of the ribs. The spleen has generally a vertical dullness of about two inches, and a transverse dullness of about four. (Piorry.)

body between the two hands is very apparent. In feeling for the edge of any organ or tumour, the best plan is to press the fingers deeply into the soft abdomen, below or above the mass to be investigated; then moving the hands towards the tumour, still keeping the fingers firmly pressed into the abdomen, the edge of the mass may be felt distinctly resting against the fingers, and by relaxing the abdominal pressure, may be felt to ride over them. In using palpation, the abdominal walls should be relaxed by making the patient draw up his knees; and the face should be watched during its performance, as expressions of pain are often seen in it before the patient complains of any. No more pressure should be used in palpation than is absolutely required, as much mischief, even rupture of an aneurism, or perforation of the stomach or intestine when ulcerated, might be caused by it.

Situation where a tumour is felt is of great importance in diagnosis, for we naturally turn our attention at once to the organ that normally exists there. Thus in a tumour in the right hypochondrium, we think of the liver; in the epigastrium of the stomach, omentum, or pancreas; in the left hypochondrium, of the spleen; in the flanks, of the ovaries or kidneys; in the hypogastrium, of the bladder or uterus; in the track of the aorta, of an aneurism; and in the direction of the colon for impacted fæces; but all these relations may be altered by disease. Surface and hardness should be most carefully examined:—Thus a roundish smooth tumour projecting from any organ is generally a cyst, hydatid, or abscess. If the swelling is rugged and unequally bossed, it is often owing to cancer. If numbers of small hard irregular lumps occur in the liver, it is generally cirrhosed. If any organ, as the liver, is large smooth and painless, it may be owing to congestion, or fatty or amyloid degeneration. Swelling, hardness, and tenderness in the right iliac region, is often diagnostic of inflammation about the cæcum, or some abscess

connected with the spine. Pulsation should be felt for carefully in any swelling, but it must be remembered that any tumour in contact with the abdominal aorta may partake of its pulsation as well as an aneurism. Fluctuation should always be tried for, in suspected ascites or ovarian dropsy: it is best performed by pressing one hand firmly against one side of the abdomen or tumour to be examined, and then flipping the other side of the swelling sharply with the fingers of the other hand; an impulse of the wave caused by this act will then be more or less distinctly felt.[1] *Percussion* is of great use in the diagnosis of abdominal diseases; dullness of course indicates some solid or fluid mass, and resonance, or tympanitis, air in the intestine. Aid in ascertaining the boundaries of contiguous masses, provided they are of different densities, may sometimes be obtained by combined percussion and auscultation; the method of proceeding is to listen with a stethoscope at one end of the mass, while some one begins to percuss the other end, percussing up gradually towards the auscultator; as the percussor passes from one mass to the other, a change of note will be perceived. *Auscultation* is sometimes of use in exploring the abdomen; thus the fœtal heart, or uterine souffle, heard in an abdominal tumour, may solve many a mystery. Murmurs may be heard in many fibroid tumours, and in some cases over the liver. In peritonitis a friction sound may sometimes be heard.

[1] If the edge of a hand or a thin book be pressed on the abdomen at right angles to the wave that is generated, fluctuation, if fluid is present, will still remain, but the fallacy of fluctuation of the abdominal walls will be avoided.

CHAPTER III.

URINARY SYSTEM.

DYSURIA—QUANTITY PASSED IN TWENTY-FOUR HOURS—COLOUR—SMELL—ACIDITY—SPECIFIC GRAVITY—DEPOSIT—CHEMICAL AND MICROSCOPICAL EXAMINATION, ALONE AND COMBINED (ALBUMEN, CASTS, BLOOD, SUGAR AND BILE).

Dysuria.

In dysuria or pain in passing urine, enquire the seat of pain, and test the regions of the kidneys for tenderness on pressure. Pain in the urinary track is generally caused by acute nephritis, the irritation of cantharides, abnormal states of the urine, or the passage of a stone or gravel.[1]

Quantity of urine.

When a patient complains of passing no urine, or of its dribbling away, always feel for a distended bladder. The hypogastric region should be daily examined in paralysis, in fevers, and where the sensibility of the patient is dulled.[2] Retention of urine is most common in typhus and typhoid fevers, cases of paralysis, hysteria, or where a calculus is present. Absolute suppression occurs most commonly in cholera, in cases of irritant poisoning, in strangury, and in acute and chronic Bright's disease. When the quantity of the urine is much increased, it is generally owing to diabetes, chronic albuminuria, nervousness, or hysteria. In acute nephritis and in some

[1] Always keep an eye open for gonorrhœa, &c., and uterine affections in women.

[2] In women the presence of some uterine affections, as versions, &c., should always be remembered as a cause of anuria and dysuria.

other varieties of albuminuria the quantity is diminished, and this also occurs in most febrile states.[1]

Frequent micturition, especially at night, is often characteristic of morbus Brightii.

Colour.

The colour of urine is generally high in all cases of fever. In acute albuminuria or hæmaturia it is bloody or smoky, and in chronic albuminuria pale and often opalescent.[2] In jaundice it is of a deep yellow or mahogany colour. In hysteria it is pale, limpid, and passed often in large quantity. In affections involving the portal circulation, the urine is often very high coloured, and deposits urates stained bright pink or red from purpurine.

Smell.

The smell of urine is often altered by food or drugs, as when asparagus is taken; or turpentine, in which the urine acquires a smell of violets. In affections of the spinal cord it is often ammoniacal, and when pus or mucus is present (generally from retention of urine in the bladder) its odour is fœtid, and also smells of ammonia. In diabetes the smell of the urine passed is sweet, and when the urine contains cystin it is said to acquire an odour of sweetbriar.

Specific gravity.

When the specific gravity of urine is low (as below 1·015) albumen should always be sought for, and if its density is above 1·025 or 1·030, it should be tested for sugar and excess of urea. In all cases when a patient is admitted the urine should be examined once thoroughly for sugar, albumen, bile, casts, &c. &c., as then, if any of these abnormal states afterwards occur, there will be some data to go upon as to the time of their commencement. Finally, in all cases of scarlet-fever, the urine should be tested daily for the chance of albuminuria occurring. (For further information under this head see Chapter XI.)

[1] Of course any great fluid drain on the system, as profuse diarrhœa, sweating, &c., will diminish the quantity of urine passed.

[2] Medicines, as rhubarb or logwood, taken internally, may colour the urine red, and port wine or other ingredients may be mixed with it for the purposes of deception. (See urine containing albumen, in Chapter XI.)

CHAPTER IV.

GENITAL SYSTEM.

CATAMENIA—DISORDERS OF THE ORGANS OF GENERATION IN BOTH MALE AND FEMALE.

Catamenia.

In women it is necessary to enquire whether the menstrual function is carried on properly or not, and amenorrhœa, dysmenorrhœa, menorrhagia, leucorrhœa, and vicarious menstruation, should be noted.

As pregnancy is one of the most common causes of amenorrhœa, it is as well to keep the chance of such an occurrence in mind when a patient complains of the catamenia having ceased.[1]

Genital disorders.

The possibility of the patient, whether male or female, having gonorrhœa or syphilis should be kept in mind, and if suspicions arise this point should be enquired into. In hypochondriasis, impotence or some disease of the genital organs is often fancied to be present, and in diabetes there is often an entire loss of sexual desire.

[1] If this is suspected in an unmarried girl, a rapid glance at the development of the mammæ during cardiac auscultation may aid much in forming an opinion, without subjecting the patient to unnecessary annoyance; this seems a little point, but it illustrates well the whole secret of what is called 'Observation.'

CHAPTER V.

RESPIRATORY SYSTEM.

ALÆ NASI—DISCHARGE FROM NARES—CHARACTER AND NUMBER OF RESPIRATIONS—VOICE—THROAT—COUGH—EXPECTORATION—PHYSICAL EXAMINATION OF CHEST (INSPECTION, MEASUREMENT, VOCAL VIBRATION AND EXPANSION AS TESTED BY THE HAND, PERCUSSION, NATURAL BREATHING, FORCED BREATHING, COUGH IF NECESSARY, VOICE, AND UNNATURAL LOUDNESS OF CONDUCTED HEART SOUNDS).

Alæ nasi.

DILATATION and contraction of the alæ nasi during respiration, is generally characteristic of thoracic disease; it also occurs in some nervous persons, but is then not always synchronous with the respiratory acts.

Discharge from Nares.

Discharge from the nose generally indicates catarrh, foreign bodies in the nostrils, disease of bones (often syphilitic), or glanders.[1]

Character and number of respirations.

The varieties of respiration are often characteristic of different diseases. Thus in coma it is stertorous; in laryngitis, long and wheezing; in the stridulous laryngitis of children crowing or whistling, and this crowing inspiration also occurs in croup. Abdominal respiration generally indicates an acute attack of pleurisy, pleurodynia, or disease of the spinal cord between the origins of the phrenic and intercostal nerves. In peritonitis

[1] In some cases, especially after scarlet fever, it may be connected with some disease inside the cranium.

and rheumatic affections of the diaphragm and abdominal muscles, or where the abdomen is much distended as with fluid, the breathing is thoracic. Cephalic breathing occurs in connection with some diseases of the brain, and with a fatty heart. Whenever the circulation is excited the number of respirations per minute are increased, and in some nervous states they are very rapid; generally, however, in the absence of specific fevers, hurried breathing is a diagnostic sign of some intra-thoracic disease.

Voice.

Alterations of the voice occur in several diseases. In acute laryngitis the voice is hoarse and whispering, or altogether lost. In laryngeal phthisis also the voice becomes a harsh loud whisper, sounding as if formed from the roof of the mouth. Alterations of the voice, rendering it coarse and croaking, also occur in syphilitic laryngitis. Aphonia occurring suddenly, without other symptoms indicating acute disease or paralysis, is generally hysterical, and even acute laryngitis is sometimes simulated by this Protean malady. Aphonia may also occur from paralysis, and in some persons is often produced on the least cold being taken. In all affections involving the larynx, the possibility of an aneurism, or tumour pressing on the laryngeal nerves, should be kept in mind.[1]

Throat.

In all cases where sore throat is complained of, it should be examined with the spatula. Sore throat conjoined with fever, headache, and a strawberry tongue, is generally diagnostic of scarlet fever. In tonsillitis sore throat is present, accompanied by a tongue thickly coated with a white creamy fur. In diphtheria the fauces are covered with an ashy grey leathery exudation; and in syphilis we find the throat affected with superficial snail track excoriations, or deep foul ulcers with hard bases.

[1] In affections of the larynx the laryngoscope may be employed, if the clerk has time and skill to use it.

Cough.

In the commencement of phthisis pulmonalis, the cough is dry, short, and hacking. In chronic bronchitis and emphysema, it is long, straining, and loose. In pertussis, the cough is long and violent, and then a characteristic whoop is heard on inspiration, and the lungs being again filled the whole process is repeated. In croup, a brassy ringing cough often gives us the first indication of its approach: and in acute pleurisy, the short restrained cough, combined with the patient's posture and aspect of pain, often lead us to form a rapid and correct diagnosis.[1] A dry, hollow, barking, importunate cough, is generally hysterical. Cough may be reflex; it is then generally a dry one, and is often caused by dyspepsia, obstinate constipation, or worms; sometimes it is caused by an elongated uvula, or by some guttural irritation, hence it is a good rule always to examine the throat, when no apparent cause for cough can be detected elsewhere.

Expectoration.

In hæmoptysis, the blood that is expectorated is bright, florid, and often mixed with sputa; it is brought up by coughing, a certain amount of discomfort in the chest and tickling in the throat having preceded it.[2] (For other information under this and the previous head, see diseases of the lungs, Chapter XII.)

Physical examination of chest.

In inspecting the chest of a patient, see that he first stands or lies square; by this precaution all fallacies will be avoided, and any inequalities that are present will be apparent.[3] When measurement is resorted to, it should be remembered that the right side is naturally larger than the left by half an inch, and the tape should always be carried straight round at right angles to

[1] In all cases of dry ringing cough, the chest should be most carefully examined for a thoracic aneurism.

[2] The most common cause of hæmoptysis is phthisis pulmonalis, the next morbus cordis and aneurism; vicarious menstruation may also give rise to it.

[3] In looking for a swelling or pulsation as in thoracic aneurisms, it is often best to look at a patient's chest sideways, and not stand directly in front of it.

the spine.[1] Observations on both sides should be made either when the chest is expanded or when it is contracted, as of course to measure one side during inspiration and the other during expiration would involve a fallacy. In testing vocal vibration, and expansion, great care should be taken always to compare both sides in corresponding regions, and with the hands of the auscultator in equivalent positions. Vocal vibration as tested by the hand does not always correspond with alteration of voice sounds as heard through a stethoscope.[2] During auscultation the position of the patient is of importance; when listening to the front of the chest, the shoulders should be thrown well back; in listening to the back, the arms should be folded over the front of the chest and the patient should lean slightly forwards; and in listening to the lateral regions, the arms should be held up above the patient's head. The whole art of percussing well consists in resting the fingers used as a pleximeter firmly against the patient's chest, and then striking them sharply and at right angles, with the tips of one, two, or three fingers of the other hand; the motion required to bring out a clear sound should always proceed from the wrist, and not from the elbow.[3]

[1] A tape graduated into inches, having its zero in the centre, the inches counting towards each end, is a useful one in practice; as if, for instance, the zero be placed on one of the spinous processes of the vertebræ, and then the ends be brought round the patient's chest meeting at the sternum, each end of the tape will give the girth of its own side, without any calculation being required. The other side of the tape may of course be graduated in the usual manner, the zero being at one end. In left-handed people, both sides have the same measurement.

[2] In physical examination of the thorax, it should always be remembered that it is the *comparative difference* between the two lungs that generally indicates disease: thus absence of vocal vibration in both lungs is generally of no import; but should it occur only in one, disease is present; hence *in all cases, both during percussion and auscultation, corresponding spots on the two sides of the chest should be alternately compared.*

[3] A modification of percussion is sometimes useful in finding out whether there is air in the pleural cavity, or whether some large hollow space containing air exists in any part of the lung: The auscultator applies his ear over the suspected spot, and gets a neighbour to percuss the opposite side of the chest, using instead of his fingers two large coins (as half-crowns) for plessor and

During percussion the sense of resistance given by the chest should always be noted, as well as the sound that is heard. In estimating very slight differences in the percussion note the ear must be so held as to be the same distance from where the sounds proceed on either side: this is not an imaginary but a practical refinement. Method in auscultation, as in most other things, is everything, and the best way to proceed is to place the stethoscope on one side of the chest over the region to be examined, and to listen, first to natural breathing, then to forced breathing (making the patient cough if necessary), and then to the voice; this done, move the stethoscope to the exact corresponding spot on the other side of the chest, and go through the same process.[1] Always note any abnormality in the conducted heart sounds, when examining the pulmonary organs. (For further information under this head see Chapter XII.)

plexímeter respectively; if there is any space containing air between the ear of the auscultator and the part percussed, the sound heard will be ringing and bell-like; if, however, the lung is normal, only a dull sound will be perceived.

[1] When pressure with the stethoscope causes the patient much distress, a good plan to adopt is, holding the instrument in the hand, to press its large end firmly against the ear so as to shut out all sound: then to move gently towards the patient, hand head and stethoscope together, till the small end of the latter touches the part to be examined. By this simple means the pressure of the auscultator's head falls on his hand instead of on the patient's chest, who is thereby saved much unnecessary pain.

CHAPTER VI.

CIRCULATORY SYSTEM.

PART I.—PULSE (FREQUENCY, CHARACTER, STATE OF HARDNESS OF THE ARTERIAL COATS, EQUALITY OR OTHERWISE OF THE TWO RADIALS, VISIBLE PULSATIONS).

PART II.—HEART (INSPECTION, POINT OF APEX BEAT, EXTENT AND CHARACTER OF IMPULSE, AREA OF DULLNESS, FRICTION, MURMURS, THEIR SITUATION AND TRACK).

PART III.—LARGE VESSELS (INSPECTION, INCREASE OF EXTENT OF DULLNESS, IMPULSE AND PULSATIONS, MURMURS).

PART I.

PULSE.

Frequency.

IN testing the frequency of a pulse twenty seconds will be found a convenient time, as the error in a minute can then but be very small; if, however, the least inequality or irregularity is observed, it should be counted a whole minute, or more if necessary.[1]

[1] The pulse of a nervous person should not be counted for some time after it is felt, and the attention of the patient should be, if possible, diverted to some other subject.

When no pulse can be felt in the radial artery, the information required can often be gained in the brachial.

Normal frequency of Pulse.

At Birth	140–150	In Youth	90
In Infancy	120	In Adult Age	60–75
In Childhood	100	In Old Age	70
	Decrepitude	75–80	

The female pulse, after 7 years of age, is about 10 beats quicker than the male. Where much subsultus is present, the pulse may be easily counted by holding the patient's hand steady with one hand, while his pulse is felt with the other; it may often also be felt easily in one of the temporal arteries.

Character.

In estimating a pulse medically, several things must be taken into consideration. Firstly, the natural or impaired structure of the arterial coats; secondly, the tonic contraction and elasticity of the artery itself; thirdly, the suddenness and power of the impulse communicated to the artery by the heart's action; and fourthly, the amount of blood the artery contains, and whether this quantity undergoes any sudden diminution. Abnormal hardness of an artery from change in its coats is best tested by running the fingers along its surface; this is generally tortuous, and feels hard, cordy, and not naturally elastic. Compressibility of a pulse depends on the amount of tone and elasticity present in the arterial walls, and also partly, perhaps, on the sustained power of the heart's contractions. Where tone and elasticity are in excess, the pulse is hard and incompressible; but where they are deficient, the pulse is soft and easily extinguished. Fullness of an artery depends chiefly on the amount of blood sent into it at each contraction of the heart; if this is constantly the same the pulse is *equal*, if otherwise it is called *unequal*.[1] Sharpness or quickness of beat depends on the suddenness of the heart's systole; and therefore of course, in this case, a pulse may be slow in frequency, as it is the quality of each beat and not the number of pulsations per minute that is here estimated. Where the elasticity of the large arterial trunks is destroyed, as in aortic disease, or aneurism, the pulse becomes jerking, thrilling or vibrating; and if the aortic valves permit of regurgitation, the pulse is sudden and abrupt, as if 'shot under the finger,' the wave not being sustained.

In mitral disease the pulse is generally weak, unequal, and irregular; and in some cerebral diseases the frequency of the pulse varies greatly at different times, and often aids us in diagnosis. The typical pulse of acute rheumatism is full,

[1] Fullness is estimated by the pulse striking a large portion of the finger feeling it. If only a very small portion is struck the pulse is said to be *small*.

bounding, rapid, and very compressible; while that of peritonitis and some other acute inflammations of serous membranes is small, frequent, hard, and incompressible. When the consistence of the blood is modified, as in anæmia, the pulse acquires a thrilling character. Unequal pulses in the two radials generally indicate aneurism, pleurisy with large effusion, or some tumour interfering by pressure with the passage of blood into the vessels of the side where the pulse is feeble. Sometimes a pulse is met with which has an undulating character; this appears to be the result of a very weak action of the heart; the systole not being sustained, while the elasticity and tone of the artery are very much diminished. Visible short pulsations in different arteries of the body are generally indicative of aortic regurgitation.

PART II.

HEART.

Inspection. In inspecting the cardiac region, see whether the heart's movements are apparent over an extended space, and whether the intercostal spaces sink in or not during its action.

Physical examination. To find the apex of the heart, feel for the point lowest and most to the left, in which its impulse can be felt.[1] The normal position of the apex beat is between the fifth and sixth ribs, an inch and an half below the nipple, and an inch to its sternal side. In disease this position is often altered. In cases of emphysema the apex is often seen beating in the epigastrium; and in pleurisy with large effusion, or empyæma, the heart is often pushed over towards the sound side. Hypertrophy and dilatation of the heart also alter the position of the apex beat, and it may be pushed aside by tumours in the chest, or upwards by ascites,

[1] Sometimes by making the patient sit up, and lean forward, the apex can be more easily distinguished.

ovarian dropsy, or some tumour in the abdomen. Extent and character of impulse is best estimated by pressing the fingers or whole hand over the normal situation of the heart.

In hypertrophy the impulse is steady, heaving, and irrepressible; in excited cardiac action it is sharp, and knocking; while if there is much fluid in the pericardium, or if the heart is entirely covered by emphysematous lung, no impulse at all may be felt.[1] In a weak or fatty heart the impulse is also greatly diminished. To find the area of cardiac dullness requires very careful percussion; it normally exists for a circle two inches in diameter, taking as a centre the middle of the fifth costal cartilage. In hypertrophy and dilatation of the heart, the increase of dullness is on the whole most transversely: while in pericarditis with effusion, though the dullness extends in all directions, it is mostly increased upwards and rather to the right; in the latter case also, the sound given out by percussion is more absolutely dull, and the sense of resistance is more increased than in cardiac hypertrophy.

Emphysematous lungs, pneumothorax, or a stomach full of air, may mask or diminish the heart's normal dullness, as well as atrophy of the heart itself. The practical distinction required in the diagnosis of cardiac murmurs, is whether they are heard loudest at the base or apex of the heart; and whether they coincide with the time of its systole or diastole. As a general rule in listening for murmurs at the base of the heart, first place the stethoscope over the centre of the sternum, at the level of its junction with the third ribs. If a murmur is heard there, move the stethoscope upwards towards the junction of the second right cartilage (aortic cartilage) with the sternum, and to the first right intercostal interspace, and see if the murmur remains loud in that direction; then shift the stethoscope to the junction of

[1] Never be satisfied till you have found the situation of the heart; not very long ago I met with a case in which it was situated in the right side of the chest, evidently a congenital transposition.

the second left cartilage (pulmonary cartilage) with the sternum, and to the first left intercostal space, and compare the loudness of the murmur heard there with that previously heard on the right side. If the murmur is one situated at the base, and is heard louder when traced upwards and to the right, than upwards and to the left, it is probably *aortic*; if, however, it is heard loudest when traced upwards and to the left and less loud to the right, it is probably situated in the *pulmonary artery*. In listening for murmurs at the heart's apex, first place the stethoscope over the spot where the actual point of the heart is felt beating, and then shift the stethoscope over the lower part of the sternum and ensiform cartilage. A murmur heard loudest at and about the apex of the heart, is generally *mitral*: while one heard loud at the ensiform cartilage and all over the right ventricle, is generally *tricuspid*. During the auscultation of murmurs at the apex, always move the stethoscope well beyond the apex of the heart into the left axilla, as murmurs sometimes may be detected there, when listening over the actual heart's apex gives no abnormal sound. If in doubt about the presence of a faint murmur, by getting the patient to hold his breath it will often become more apparent; this also removes the fallacy of one of the sounds of respiration being mistaken for a murmur. When a murmur is heard at both the apex and base of the heart, it is sometimes difficult to find out whether it is a single one, or one situated at both the aortic and mitral orifices; by listening however, carefully downwards, from base to apex, the sound will generally become fainter and then again stronger as the auscultator passes from one region to the other, if the murmur has a double origin; or the nature of the sound may even be changed entirely.[1] Always determine whether a murmur is systolic or diastolic, by feeling the pulse or

[1] Sometimes a murmur being heard in the carotids, may clear up the doubt of there being a murmur at the base of the heart as well as at the apex.

impulse of the heart when listening to the murmur. Hæmic murmurs may be heard at the heart's base in anæmia and in some of the exanthemata; in this case the murmur is generally soft and blowing, and murmurs can also often be heard in the carotids, and in the large veins of the neck. Pericardial friction-sounds are generally sufficiently plain to the ear of the auscultator, but sometimes in commencing pericarditis the heart's sounds are cantering, no friction being heard, or only a single rub may be present; occasionally also only a churning sound is to be heard.[1] (For further information under this head see Diseases of the Heart, Chapter XIII.)

PART III.

LARGE VESSELS.

Inspection.

Any swelling or visible pulsation in the large arteries and veins of the neck, should be carefully looked for and ausculted if necessary; and a varicose state or any unusual development of the systemic veins should be noted. In a well-marked case of aortic regurgitation, all the arteries of the body that are visible pulsate jerkingly. In cases of suspected aneurism, whether in the chest or abdomen, the situation of the large vessels should be most carefully examined for swelling, and percussed for any abnormal dullness; any impulse or pulsation felt or seen in them should be carefully noted, and murmurs should always be listened for.

Physical examination, &c.

In anæmia the bruit de diable may generally be heard in the jugular veins, and soft systolic murmurs also in the larger arteries. In tricuspid regurgitation, the veins of the neck visibly pulsate, and in many cases of aortic and cardiac disease the carotids are noticed to pulsate tumultuously. (For further information under this head see Chapter XIII.)

[1] In all cases of acute rheumatism, especially in the young, the clerk should examine the heart daily.

CHAPTER VII.

INTEGUMENTARY AND GLANDULAR SYSTEMS.

PART I.—SKIN (HEAT, MOISTURE AND ROUGHNESS, ODOUR, COLOUR, ŒDEMA, SCARS, ERUPTIONS).

PART II.—GLANDS AND LYMPHATICS (SWELLING AND REDNESS).

PART I.

SKIN.

Heat.

THE temperature of the skin is one of the most important points to be noticed in a patient, as it discloses at once the presence or absence of a febrile disease; the part in which it is estimated should be one which has been previously well covered up, as the hands &c. if exposed may be quite cold, when the axillæ and trunk of the body are burning hot. The clinical thermometer is by far the best method of estimating the heat of a patient; and it would much enhance the value of every case taken, and also aid the progress of the profession at large, if every patient's temperature was daily noted during the progress of any acute disease.[1] In taking temperatures, care should be taken that the patient has been in bed some time, and has been well covered up; before placing the thermometer in the axilla, always take care that the linen of the patient is pushed entirely away from where the instrument is to be situated, then having placed it well in contact with the skin of the axilla, fold the arm over the chest as if the hand were about

[1] On this point the observations of S. Ringer, in his book on 'Phthisis,' may be consulted with advantage.

to grasp the shoulder of the other arm: this, as a general rule, will hold it well in place; as long as the bulb of the thermometer is entirely in contact with the axillary walls posture is of no import, but no doubt a position midway between lying on the back and on the side is generally most convenient, as advocated by Ringer; after the introduction of the instrument the patient's chest and shoulders should be well covered up with the bed-clothes, and from four to five minutes should elapse before the final temperature is read off. (The time of day at which the temperature is taken should always be noted; and if possible it should be taken about the same hour, day after day.[1])

Moisture and roughness.

A dry or moist state of the skin is a point of great moment, and differs much in different diseases: thus in acute rheumatism drops of sweat are often seen standing on a patient's face; and I have observed this not unfrequently in typhoid fever. In hectic, as is well known, the night perspirations are profuse and drenching; while as a general rule in the onset of acute diseases, as pneumonia or typhus fever, the skin is arid and often loses its soft supple feeling, becoming dry and harsh. In diabetes the skin is harsh, dry, and cool: and during the desquamative stage of scarlet fever, it is rough and scaly. (Whenever the skin is found to be desquamating, the clerk should enquire carefully for some previous history of scarlet fever, erysipelas,

[1] Some observers have objected to temperatures being taken only once a day, saying, that the morning and evening temperatures differ so much that one observation is of little value. This is in some diseases true (as in ague, erysipelas, and the latter part of typhoid fever); but, by taking the mean of a number of morning and evening observations as a standard more or less true for a mid-day observation, I have found a single temperature taken about the same hour every day, to be of great value in the diagnosis of disease. I do not undervalue two or three daily observations; but think, that for the thermometer to be of real use to us as medical practitioners, we must be satisfied with its use, as a rule, only once a day. Let me add however that in certain diseases, as in 'Phthisis,' so well investigated by Ringer, I should not venture to form a prognosis &c. of a case, without taking the temperatures for some time morning and evening daily.

or some of the exanthemata.) Hypertrophy of the cuticle, causing the skin to feel rough and scaly, also occurs in ichthyosis.

Odour.

Odour of the skin and perspiration sometimes affords us aid in diagnosis; thus in acute rheumatism the odour given out is acid and disagreeable, like that of a sour poultice. In a case of Dr. W. Begbie's, where excess of uroxanthine was present in the urine, the perspiration and breath acquired the odour of violets. During the maturation of the small-pox pustules, the skin gives out a peculiar greasy disagreeable smell, which once experienced is not easily forgotten.[1] Again, typhus and typhoid fever have each their own proper odour, that of the latter being sometimes strongly mousy.

Colour.

The natural colour of the skin alters in many diseases:—Thus, in jaundice it becomes tinged with yellow. In all diseases associated with anæmia it is pallid, and often mixed with yellow as in chlorosis and cancer. In morbus cæruleus it is dusky purple, or even blue; while in all diseases where the aeration of blood is not properly carried on, the skin becomes dusky.

Bronzing of the skin is diagnostic generally of supra-renal capsular disease. A red ear on one side coming on after taking food, is often characteristic of dyspepsia; and a redness and burning feeling occasionally coming round the margins of the palms of the hands, generally indicates indigestion or hectic.

Œdema.

Œdema of the skin and general anasarca should always be looked for; the latter usually indicates morbus Brightii, but in advanced cases of disease of the heart there is always much œdema present. Local œdema's often lead us to the diagnosis of local inflammations in their neighbourhoods.

[1] The Ceylon Cheetah or Leopard smells it out, and seems to be strongly attracted by it. See Emerson Tennant, Vol. i. p. 141.

Swelling of the feet at night, which subsides by the morning after a night's rest in the horizontal posture, is of common occurrence in many cases of debility.[1]

Scars. Any scars that the patient has about him must be noticed: and the marks of previous cupping, leeching, &c., as this may point to some former ailment having existed, of which the patient has no recollection.[2] Again, the mark of a deep cut over the main branch of a nerve, may account for many anomalous symptoms of numbness or paralysis, which might otherwise have led us to suspect some more deep-seated disease in the nervous system.

Eruptions. The characters of some of the more common febrile eruptions are so important, and so frequently met with, that I shall here describe a few of those which the clerk is most likely to meet with. In varicella the eruption comes out within twenty-four hours, as a pimply rash, often sparing the face; on the second day the pimples become vesicular, and these scab and fall off about the fifth day, the vesicles never having become pustular. In scarlet fever the rash comes out on the second day, and occurs in crimson coloured patches which often unite, reddening the whole surface. In small-pox the eruption generally first shows itself on the third day, as a number of elevated hard papulæ coming out on the face, and then afterwards on the body; on the sixth day these papulæ have become vesicular, on the eight day pustular, and on the eleventh or twelfth day the pustules dry up into scabs, which then fall off, leaving a temporary purplish red stain, or perhaps a pit. The eruption of measles comes out as a papular raspberry-coloured rash on

[1] In testing for œdema, the skin over a bone (as the tibia) should always be the part tried, as pitting takes place there more readily than over a soft part.

[2] If, for instance, in a patient suffering from a second attack of acute rheumatism where an endocardial murmur is present, we find the marks of previous cupping or leeching over the præcordial region, this point alone may lead us to conclude that the murmur is not one of recent origin, though the patient may deny that his heart was at all affected during his previous attack.

the fourth day, and these papulæ often unite into crescentic-shaped patches. In typhus the whole skin is mottled and has a dusky appearance from the presence of a subcutaneous rash, while on its surface are a number of mulberry-coloured irregularly-shaped spots, elevated, and disappearing on pressure; the eruption first appears from the fifth to the eighth day, and sometimes, especially late on in the disease, becomes petechial. In typhoid fever the general surface of the skin is clear and healthy, while here and there, if carefully looked for, small rose-coloured elevated lenticular spots are to be seen, which though elevated disappear entirely on pressure; they come out about the tenth day, last three or four days, and then disappear, a fresh crop springing up in some other part previously healthy.[1] Purpura is characterised by the presence of a number of red or claret-coloured spots of different sizes occurring over the body; these spots, when fading, go through all the stages of colour which are observed to take place in an ordinary bruise. Sudamina, i.e. crops of small transparent vesicles, are seen in many diseases where sweating occurs; they can often be diagnosed by the sense of touch. In erysipelas the skin is red, hot, and swollen from œdema; it is often accompanied by pain, swelling, and tenderness of the lymphatic glands of the neck: Frank affirms that sharp fever for twenty-four or forty-eight hours, plus this glandular affection, is diagnostic of an approaching attack of the disease. In acute rheumatism the joints affected are often hot, swollen, and tender; the skin over them is fair and clear, often tinted with a faint pink flush; and the veins of the part are blue and prominent.[2] The smaller joints in acute gout present much the same appearance; but desqua-

[1] These require to be very carefully looked for, as they are often few in number and would be entirely passed over by a careless observer; they are distinguished from flea-bites by the latter being round and red, with a dark pink spot in the centre.

[2] In all cases of acute rheumatism, especially in the young, the heart should be ausculted daily.

matic takes place afterwards in them, which does not occur in rheumatism. The last eruption I shall speak of is that of erythema nodosum: in this disease red oval elevated patches or lumps, about an inch or an inch and a half in diameter, come out generally on the anterior surface of the legs, their long diameter generally corresponding with the long axis of the limbs: after lasting out a few days these red patches fade, or often change to a blue and then gradually subside altogether.[1]

Part II.

GLANDS AND LYMPHATICS.

Swelling and redness.

Swollen glands are now and then of use to us in framing an opinion. Thus where a doubtful tumour has been discovered in the chest, the presence of swollen glands in the neck or axilla would lead us to believe that it is of a cancerous nature. Again, swollen glands in the groin lead us to look out for some disease in the genital organs, or in the leg of the side affected. One of the best marks of struma in children is the occurrence of swollen and diseased glands at the side of the neck. Swelling of one or both parotid glands, accompanied by a febrile state, is diagnostic of cynanche parotidea. In farcy the glandular system is the principal one affected, and both the glands and lymphatics become swollen and painful. Sometimes the diagnosis of syphilis may be aided, by finding a swollen state of the glands at the back of the neck just under the occiput; or swelling of the inguinal glands may afford some information of venereal disease. Anæmia, if accompanied by a general enlargement of the glands of the system, including the liver and spleen, is generally diagnostic of the

[1] To go into diseases of the skin would be out of the province of this work, but the clerk should always describe carefully any eruption that may be present.

state called leucocythemia. Any local irritation may cause enlargement of the glands round the part affected; thus sometimes in convulsions during infancy, a swollen state of the glands about the jaw and ears may show us that the primary cause of the mischief is to be sought for in the mouth, and not in the state of the nervous system. Swelling of the glands of the neck also occurs in diseases affecting the throat, as scarlet fever, diphtheria, &c.; and swelling of the salivary glands also sometimes occurs, and often points out to us that the patient has been previously dosed, or perhaps even poisoned with mercury. (See Abnormal States of the Blood, Chapter XIV.)

CHAPTER VIII.

NERVOUS SYSTEM.

PART I.—CEREBRAL (INTELLIGENCE, VERTIGO, STUPOR, COMA, SLEEP, DREAMS, DELIRIUM, HALLUCINATIONS, CEPHALALGIA).

PART II.—SPECIAL SENSE (SIGHT, HEARING, SMELL AND TASTE, TOUCH).

PART III.—SPINAL AND CEREBRO-SPINAL (SPASM INCLUDING CONVULSIONS, SUBSULTUS, FLOCCITATIO, RIGIDITY AND CONTRACTION OF MUSCLES, PARALYSIS).

PART I.

CEREBRAL.

Intelligence.

In ascertaining the intelligence of patients, it is as well to check what they say by the report of their attendants; thus maniacs or patients dulled with fever will often appear to answer questions most rationally, but all their answers will on enquiry turn out to be totally false ones.

Coma.

Careful attention to three points will often clear up many cases of coma. First, the smell of the breath; this as a rule will diagnose dead drunkenness, and some cases of poisoning, as by hydrocyanic acid, chloroform, ether, &c. Secondly, the presence or not of albumen in the urine, and in lack of this general anasarca; the presence of either of these will at once suggest uræmia. Thirdly, the combination of the coma with specific fevers, inflammation or paralysis; this generally points to some

alteration in the cerebral circulation, or to effusion, or an apoplectic clot. When a patient lies prostrate in bed with his eyes open, awake and yet insensible to all around him, he is said to be in a state of *coma-vigil* (this most commonly occurs in typhus).

Sleep. Sleeplessness can hardly be said to be characteristic of any one disease; but it is as well to remember that total wakefulness is one of the most common symptoms of delirium tremens, encephalitis, and acute mania.

Delirium. Delirium is most common at night, when the wandering ideas of patients are no longer corrected by external objects; hence delirium occurring during the day is a more serious symptom than that occurring at night time.

The delirium of delirium tremens is peculiar; it is one of a fidgety and busy character; and the delusions present are generally superficial ones and not deep-seated, as the seeing of imps, rats, &c., or the feeling of toads and insects crawling over the skin. In encephalitis the delirium is generally furious, and in typhus and typhoid states of the system, it is often of a low muttering character.

Cephalalgia. Cephalalgia or headache varies much in its cause, and may be external or internal to the skull. If it is increased by moving the muscles of the scalp, and by pressure, it is generally rheumatic; if limited, and increased by deep pressure but not much by muscular movement, it is generally periosteal.[1] (Syphilitic?) If periodic and not much increased by pressure, it is of neuralgic character. When its source is one internal to the cranium other signs of cerebral disturbance may aid the diagnosis, as sickness or affections of some of the special senses, or paralysis, local or otherwise. In acute hydrocephalus children

[1] By keeping the eyes open for specific eruptions, scars, nodes, or sore throats; headache may often be diagnosed to be of syphilitic origin.

often wake out of sleep with a shriek of pain, and later on, when coma is commencing, this shriek is changed to a moaning noise.

A fixed pain over the eyebrows or on the top of the head, with sometimes the feeling of violent pulsation inside the cranium, is a not unfrequent concomitant of anæmia.

PART II.

SPECIAL SENSES.

Sight.

The sense of sight can be tested by holding up one, two, or three fingers in the distance, and asking the patient how many are in sight, making him use each eye separately; when any abnormality of vision is discovered, enquiry should always be made how long it has existed.[1] Double vision, it should be remembered, may depend upon squint, as well as upon some change in the optic apparatus itself. The size and contractility of the pupils to light should always be noted, and the depth of coma may sometimes be judged of by seeing whether the eyes follow the light reflected into them from a piece of looking-glass. In cases of defective vision the use of the ophthalmoscope may aid the diagnosis.

Hearing.

Acuteness of hearing may be tested by moving a watch gradually away from the patient's ear, till it can no longer be heard ticking; the relative acuteness of both ears also can be ascertained by this method. When a patient complains of hearing, always look into his ear for wax. In typhus fever there is generally more or less deafness present; but the hearing may be morbidly acute, and this is a bad symptom. Morbid sensibility to both sound and light occurs also in most acute cranial inflammations, and in some chronic cerebral changes.

[1] Susceptibility to colour may also be gone into if occasion calls for it.

Smell and taste.

Variations in the sense of smell may be tested by scents, &c., as may also variations in taste by savoury or pungent substances. In some cases of paralysis, loss of taste on one side of the tongue is well marked.[1]

Touch.

The sense of touch is often altered: sometimes, for instance, a patient is unable to grasp any object unless his eyes are fixed upon it, and the moment his attention is diverted down drops the object to the ground. Perfect or partial anæsthesia often occurs in paralysis; but this seems to vary in responding to different stimuli, as pricking, heat, and electricity.[2]

PART III.

SPINAL AND CEREBRO-SPINAL.

Spasm and convulsions.

Spasm may be *clonic*, i.e. interrupted, of which convulsions are an instance; or *tonic*, continuous, as occurs in cramp. In noticing convulsions, it should always be observed whether they are partial, unilateral, or stronger on one side than the other; also the time of their duration, and whether they are periodic or otherwise. That convulsions are often reflex, depending on worms, &c., is a thing never to be forgotten; and in children it often saves much trouble to look at the teeth or to feel for swollen glands in the neck, as evidences of some dental irritation. The causes of convulsions are too numerous to be even mentioned here; but it is as well, when seeking for their cause, to keep in mind albuminuria, and the chance of some

[1] Dilute tincture of iodine can almost always be obtained in a ward, and its taste is sufficiently decided to make an impression on most patients.

[2] Observations made under this head should be most carefully performed, and done under cover, or with the patient's eyes shut to prevent imposition. As we have here only the patient's sensations, and nothing to check any of his fancies, nothing should be recorded as a fact until it has been tried several times, and always with the same result.

poison having been administered. In tetanus, tonic spasm is seen in fearful reality, and in such cases opisthotonos, emprosthotonos, &c., must be noted; hysteria should not be forgotten as occasionally assuming this form. Severe cramps, especially in the legs, occur in cholera, and in some cases of poisoning, as by arsenic.

Subsultus and floccitatio.

Muscular twitchings (subsultus tendinum) and picking of the bed clothes (floccitatio) are signs of extreme weakness of the nervous system, and are strong indications for the combined use of nutrients and stimuli.

Rigidity and contraction of muscles.

Rigidity and contraction of the muscles of the extremities, generally results from some cerebral irritation (said to be present near the membranes). When local, as in one of the abdominal recti, it is often to shield some tender organ situated beneath it.

Paralysis.

In observing paralysis, notice should be taken whether it affects the whole of one side (hemiplegia), or whether it takes the lower or upper part of the body (paraplegia).[1] Partial paralysis, as that of the face, hand, and tongue, must also be noted.[2] In cases where the wrist is dropped, always enquire whether the patient has been exposed to the action of lead, and look along the margin of the gums for a blue line. Constant picking of the nose, is generally indicative of some intestinal irritation, or of cerebral disturbance.

[1] Any anæsthetic belt, or feeling as of a string tied round the body, should be sought for in cases of paraplegia; and in all cases of spinal paralysis the spine should be percussed, and tested with a hot sponge, to see if tenderness exists at any point.

[2] In paralysis involving the fifth nerve, there is anæsthesia of one side of the face and lips, and loss of taste on one side of the tongue; the temporal and masseter muscles are also paralysed. In paralysis involving the seventh nerve, there is paralysis of all the muscles on one side of the face, including the buccinator; but the muscles of mastication are not involved, and there is no anæsthesia.

CHAPTER IX.

COMPLAINTS.

NEARLY everything under this head will have been gained in the examination of the different systems, and it is only necessary here for the clerk to collate them together in an intelligible form: a few remarks, however, on pain may not here be out of place. In the first place, when a patient is ill, the very complaining of pain is to a certain extent a good symptom, for the nervous system may be so dulled that it ceases to appreciate its existence (euphoria). Thus in some epidemics, as cholera, plague, &c., a man may walk about with death in his face stating he has nothing the matter with him, and then in another minute fall down dead: again, towards the end of chronic diseases, as phthisis and cancer, this state sometimes occurs; the patient one day suddenly states he feels quite well, and perhaps wants to get up; this amendment, however, is but deceitful, and generally foretels a rapid termination to the case.

The character of pain is sometimes of importance. Thus in inflammation of serous membranes it is of a sharp piercing character; and lancinating pain occurs in cancer. In inflammation of mucous membranes, there is generally a feeling of rawness or soreness over the part affected. In inflammation of many solid organs, as the liver, kidney, lung, &c., the pain is dull and aching; and in neuralgia the pain comes on in paroxysms, and is of a very severe shooting tearing character, being often erratic. In the exanthemata there is generally at first pain in the back and head, and

this dorsal pain is especially severe in the early stages of small-pox and erysipelas; later on in this class of diseases there is generally more a feeling of *all-overishness* than any actual pain, though there may be dull headache, or pain over any organ implicated. In gastric ulcer the pain is generally limited to a small spot in the centre of the epigastrium: it is usually of a burning or gnawing character, and sometimes only a feeling of weight and tightness is present; dorsal pain, from about the eighth dorsal to the third lumbar vertebra, may also occur in this disease. In hysterical patients, and frequently in those of the Hibernian race, pain is complained of wherever it is asked for; and in the former the excessive tenderness on the least touch is almost diagnostic, especially as firm pressure is well borne if only the patient's attention can be diverted.

In almost all inflammations, pressure increases pain; but in neuralgic and spasmodic affections, as colic and the passage of gall-stones, &c., firm flat pressure generally relieves it. It should never be forgotten that pain does not always exist at the seat of the disease, but may be sympathetic. Thus where the hip-joint is diseased, the only pain present may be in the knee. In affections of the liver, there is often pain under the right shoulder-blade; in affections of the stomach, there may be pain under the left; in affections of the heart, there is often pain shooting down one or both arms; in pleurisy on the right side, the only pain complained of may be in the right hypochondrium; pain at the end of the urethra, is generally indicative of stone in the bladder, or of irritating urine; pain in the loins often accompanies uterine disorders; and a calculus in the ureter, or inflammation of the kidney, often causes pain in the groin, thigh, or testicle of the side affected. Finally, in many intestinal affections the pain is referred to the umbilicus.

CHAPTER X.

HISTORY.

BUSINESS—MARRIED OR SINGLE—CHILDREN—PLACE OF ABODE—HABITS—HOW LONG ILLNESS COMMENCED AND CIRCUMSTANCES ATTENDING IT—MEDICAL ATTENDANT—ANY PREVIOUS ATTACK OF THE SAME OR ANY OTHER ILLNESS—HEALTH AND AGE OF PARENTS AND OTHER MEMBERS OF THE FAMILY—FEVERS, ETC., IN THE NEIGHBOURHOOD.

In taking a history the object should be to make it as short, concise, and to the point as possible.

Business.

Business is often a matter of importance:—Thus in patients much exposed to alternations of heat and cold, rheumatism is a likely affection to occur. In grinders, workers in mines, stonecutters, &c., and during any occupation in which much dust is generated, diseases of the lungs are most common. Again, workers in coloured papers and artificial flowers are apt to be poisoned by the metallic dust, often arsenical, given off in their work. Painters, and those who deal much with lead, are apt to get colic and partial paralysis, as dropped wrist. Grooms and farriers are those most exposed to the poisons of farcy and glanders. Workers in mercury get mercurial tremors or salivation.[1] And the manufacturers of certain substances, as paraffine, are apt to suffer from special skin diseases induced by them. Strange symptoms occurring in those who deal

[1] In mercurial poisoning a blue line is sometimes formed at the margin of the gums as occurs in lead poisoning, but this metal more frequently gives rise to a dark red line there.

with chemistry are sometimes the result of some compound they have been making; while in those who have been exposed to any great strain, as lifting great weights, aneurisms are most likely to occur. Butchers are most likely to be inoculated with animal poisons; and those who eat raw uncooked meat to tapeworm.

Place of abode.

Place of abode should always be noted, as it sometimes clears up the causation of goitre, ague cakes, &c., and also affords arguments for discussing the origins of fevers.

Habits.

In ascertaining whether a patient is of temperate habits or not, it is as well to find out the actual quantity of stimulants taken during the day; patients' and doctors' ideas of temperance often differ considerably.

Diseases the patient has suffered from, and family history.

When noting the commencement of a disease, always write down the actual date of the day on which it commenced, as July 27. Expressions such as 'a week or ten days ago,' are even at the time vague, and will render the case utterly useless for any future reference. Always also note dates in order, beginning from the first symptom of illness that the patient observed, and working up to the date of his admission. Any other illnesses that the patient has suffered from should be noted by the clerk, but need not be read out to the physician, unless they are of importance as regards the present attack. This remark also applies to the health and age of the patient's family; for in this only the occurrence of such diseases as are known to be hereditary need be read out, as cancer, tubercle, rheumatism, gout, insanity, &c.

CHAPTER XI.

ABNORMAL URINE.

Characters of Urine containing Albumen.

Quantity. GENERALLY increased in chronic Bright's disease; sometimes scanty in the acute stage, and in albuminuria dependent on morbus cordis.

Colour. Pale clear or opalescent in chronic cases; red bloody or smoky in acute ones; dark and muddy in the albuminuria dependent on morbus cordis.

Smell. Various.

Acidity. Various.

Specific gravity. Low [1·004 to 1·020] in chronic Bright's disease; slightly decreased [1·016 1·021] in acute cases; various in the albuminuria dependent on heart disease.

Deposit. White or whitish in chronic Bright's disease; tinged with red from blood in acute cases; various, generally dependent on the colour of the urates, in the albuminuria dependent on morbus cordis.

Chemical character. If either six or seven drops of nitric acid be added to some urine in a test-tube, or the urine be boiled, albumen will be precipitated. The best way to avoid all fallacies, is to fill a test-tube with the urine to about the height of two inches, to boil this, and finally to add from six to eight drops of nitric acid to the boiling urine; this will precipitate any albumen present: if the urine

is, however, alkaline, more nitric acid, as twenty to thirty drops, may be required.[1]

Microscopical character of deposit.

Generally casts, epithelium, blood, or granular débris are present; accompanied sometimes by crystals of uric acid.

CASTS.

A Compound granular cells.
B Finely granular casts.
C Oily casts.
D A coarsely granular cast.
E Small waxy casts.
F Large waxy casts.
G Epithelium.
H Blood-casts.
I Epithelial casts.
K Crystals of uric acid.
L Blood-corpuscles.

Characters of Urine containing Bile.

Colour.

The urine is of a dark yellow or mahogany colour, sometimes even almost black: the edge of the fluid is seen however to be intensely yellow; its colour is often best seen by dropping some of the urine on a white plate.

[1] It has been thought better not to enter into the fallacies that may occur in testing urine, as it would lengthen this work considerably. (Consult Dr. Beale's work on 'Urine, Urinary Deposits, and Calculi.')

Chemical characters. Add to a little of the urine on a white plate, a drop of nitric acid; a play of colours will then be observed, commencing with green and ending in red, after passing through various shades. The urine may be floated on the acid in a test-tube, and thus develop rings of colour where the fluids join.[1] This test only detects the colouring matter of the bile. To detect the biliary acids, about a drachm of the urine is to be mixed slowly in a test-tube with two-thirds of its bulk of sulphuric acid (free from sulphurous), the temperature of the mixture being kept below 100. If now a piece of sugar the size of a pin's head, or a drop or two of syrup be added to the compound, in the course of a minute or two a violet tinge will appear, which is characteristic of the bile-acids.[2]

Microscopic character. Any epithelium or deposit found, will be bile-stained.

Characters of Urine containing Blood.

See Characters of Urine containing Albumen in Acute Cases.

Characters of Urine deficient in Chlorides.

This often has a high colour and specific gravity, and may deposit urates on cooling.

Chemical character. A solution of nitrate of silver added to the urine, throws down no precipitate, or scarcely any; a few drops of nitric acid should be previously added, to prevent any phosphate of silver being thrown down.[3]

[1] The process of floating is effected by inclining the tube in which the urine has been placed, towards the horizontal posture, and then pouring steadily down its side the acid to be used; this being the most dense, sinks to the bottom of the tube without mixing with the lighter urine, which floats up and forms a layer on the top of it.

[2] I give this test of Pettenkofer, after Bowman's description. I never could succeed well with it myself.

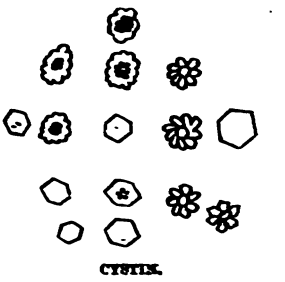
[3] Deficiency of chlorides is most marked in pneumonia, but it occurs in all other acute inflammations.

Characters of Chylous Urine.

Colour.	Milky, opalescent; perhaps pinkish, from admixture of blood.
Chemical character.	Urine is unaltered by heat, but cleared or nearly so by agitation with ether.
Microscopical character of deposit.	Molecular matter and chyle corpuscles.

Characters of Urine containing Cystin.

Quantity.	Normal.
Colour.	Pale yellow with a greenish tint.
Smell.	Aromatic, like sweetbriar, becoming fœtid during putrefaction.
Acidity.	Normal.
Specific gravity.	Rather low.
Deposit.	A pale fawn colour, like urate of soda and ammonia.
Chemical character of deposit.	Insoluble by heat, and in dilute acetic nitric and hydrochloric acids; very soluble in ammonia; on evaporation of this solution characteristic microscopic crystals of cystin may be detected.
Microscopical character of deposit.	Hexagonal crystals or rosettes.



CYSTIN.

Characters of Urine containing Mucus.

Smell.	Often fœtid and ammoniacal.
Acidity.	Slight, if any; urine is often alkaline.
Deposit.	Viscid, tenacious, and of a dirty yellow colour; becomes ropy and not diffused equally through the urine if shaken with it.

Chemical character. No albumen can be detected in the urine by heat or nitric acid; and ammonia or potass added to the deposit does not render it gelatinous.

Microscopical character of deposit. Almost identical with that of pus (see Urine containing Pus).

Characters of Urine containing Oxalate of Lime.

Quantity. May be increased.

Colour. Pale greenish or citron colour; said to be most often dark amber. I have most frequently seen it of a light yellow.

Smell. Various.

Acidity. Decided.

Specific gravity. Normal.

Deposit. A gauzy mucous cloud, waved and mountainous on its surface; numerous bright specks, like very tiny air-bubbles, may be seen studding it here and there.

OXALATE OF LIME.

Chemical character of deposit. Oxalate of lime is soluble without effervescence in the dilute mineral acids, but not in the acetic; it is reprecipitated as a white deposit on the addition of ammonia or potass.

Microscopical character of deposit. Octohedral crystals, more rarely dumb-bells.

Characters of Urine containing Excess of Phosphates.

Quantity. Normal.

Colour. Generally pale; may be dark.

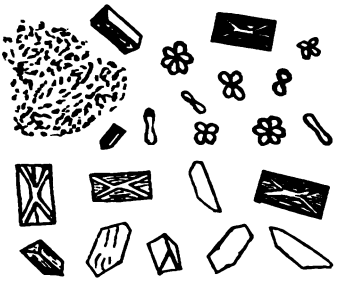
Smell. Often stinking and ammoniacal; may be normal.

Acidity. Slight; soon becomes neutral or alkaline.

Specific gravity. Generally low; may be high.

Deposit. White, grey, yellow, or red, according to the amount of coloured urates mixed with the phosphates; sometimes the phosphates form an iridescent pellicle on the surface of the urine.

Chemical character of deposit. A deposit of phosphates is insoluble in alkalies, but soluble in acids even acetic; ammonia added to the acid solution reprecipitates the phosphates.



PHOSPHATES.

Microscopical character of deposit. Triangular prisms, granular matter, and occasionally narrow longish dumb-bells, also forming compound figures.

Characters of Urine containing Pus.

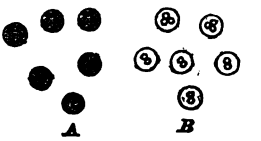
Smell. Often fœtid and ammoniacal.

Acidity. Slight, if any; urine is often ammoniacal.

Deposit. Pale greenish yellow, or cream colour: it becomes diffused through the urine if shaken with it, unless the urine is decidedly alkaline.

Chemical characters. Heat and nitric acid detect albumen in the urine; and if the deposit is treated with ammonia or potass, it becomes converted into a thick gelatinous mass.

Microscopical character of deposit.



PUS.

A Pus cells.
B Pus cells treated with acetic acid, showing nuclei.

Characters of Urine containing Semen.

Chemical characters.	Heat and nitric acid may detect traces of albumen.
Microscopical character of deposit.	Characteristic spermatozoa will be found.

Characters of Urine containing Sugar.

Quantity.	Much increased.
Colour.	Generally a pale straw yellow.
Smell.	Faint and sweetish.
Acidity.	Various.
Specific gravity.	High (1·025 to 1·050).
Deposit.	None (if the torula is developed, a whitish film may form over its surface).
Chemical characters.	To a portion of urine in a test-tube add about half its bulk of liquor potassæ and boil for four or five minutes: if the mixture becomes a dark brown or bistre colour, sugar is present.—(Moore.) To a portion of urine in a test-tube add a drop or two of a solution of sulphate of copper, and then liquor potassæ in excess; if sugar be present, the mixture will then have a mauve or purple tint: boil the mixture, and the reddish or yellow brown suboxide of copper will be precipitated.—(Trommer.) If there be no sugar, the mixture before boiling will be green, and a black precipitate will fall on boiling.[1] By using Barreswil's

[1] Great care should be taken not to add excess of sulphate of copper, as otherwise some black oxide will be sure to be thrown down, and will mask the colour of the yellow suboxide.

solution alone and boiling it with the urine, the same result as far as a precipitate goes will be obtained, and the use of two fluids will be avoided.

Microscopic character. Sometimes the torula or sugar fungus may be detected.

Characters of Urine containing an Excess of Urea.

Urine containing excess of urea is generally remarkable for its high specific gravity.

Chemical and microscopical characters. If nitric acid in equal bulk be added to the urine in the cold, urea will if in excess crystallise out, in irregular rhomboidal microscopic plates of nitrate of urea.

Characters of Urine containing an Excess of Urates.

Quantity. Various; often small.

Colour. Generally high; clear when passed, becoming muddy when cool, both staining the sides of the vessel which contains it and also depositing a sediment.

Smell. Various.

Acidity. Normal, or slightly in excess.

Specific gravity. Generally high.

Deposit. Amorphous, only formed when the urine cools; may be white or pale; more often fawn-colour or reddish; sometimes bright crimson or purple, owing to staining with purpurine.

Chemical characters of deposit. A deposit of urates is dissolved if the urine is heated, and reprecipitates as it cools. It is soluble in alkalies the alkaline carbonates and phosphates: strong acids slowly dissolve it, and then deposit crystals of uric acid which may be recognised by their microscopical character. If a little of the deposit be treated

with a drop of nitric acid, and the mixture be dried at a gentle heat; on the addition of ammonia in the cold, the beautiful purple of murexide will be developed.

Microscopical character of deposit. Most commonly granular matter; sometimes occurs in spheres with spicules sticking on them.

URATES.

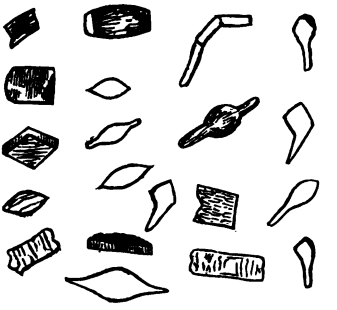
Characters of Urine containing Excess of Uric Acid.

Quantity. May be diminished.

Colour. Deep amber or reddish brown.

Smell. Various.

Acidity. Various.



URIC ACID.

Specific gravity. 1·020 to 1·025: increased if there is an excess of urea.

Deposit. Crystalline yellow or red sand.

Chemical characters of deposit. A deposit of uric acid is insoluble when the urine is heated; it is soluble in alkalies, and if the solution is again rendered acid uric acid crystals are deposited; treated with nitric acid and ammonia, the deposit gives the purple of murexide (see Urine containing Excess of Urates).

Microscopical examination of deposit. Lozenge-shaped crystals, and irregular striated masses, often stained dirty yellow brown.

Characters of Urine containing Excess of Uroxanthine [Indican].

Acidity. Persistent and marked.

Colour (?). I have generally noticed the colour to be a pale straw yellow, the phosphates or urates precipitated being colourless.

Deposit (?). White urates or phosphates.

Chemical characters. If the urine be floated on to one-third of its volume of sulphuric acid (specific gravity 1·830), and the two fluids be then gradually mixed; tints from a faint pink to a deep indigo blue show themselves, indicating the amount of uroxanthine present by their intensity of colour (the tube should be kept cool while the fluids are mixing, by gently shaking it when immersed vertically in a basin of cold water).

CHAPTER XII.

DISEASES OF THE LUNGS.

PART I.—ABNORMAL SOUNDS HEARD DURING RESPIRATION.

PART II.—DISEASES OF THE LUNGS.

PART I.

Abnormal Pulmonary Sounds heard during Breathing, and their Causes.

AMPHORIC BREATHING	CAUSE
A metallic variety of respiration, giving a sound like a gust of wind blowing sideways into a gun-barrel.	Generally entrance and exit of air from a large space; as when a bronchus opens into a large cavity, or into one of the pleural sacs when filled with air. It is not necessary that the bronchus should open into the cavity, as vibration in an adjoining bronchus will also produce the sound in a large cavity filled with air.
BRONCHIAL BREATHING	**CAUSE**
A sound like that heard through a stethoscope when applied over the trachea.[1]	Solid lung conducting the sound of air passing through the bronchi directly to the ear. A dilated bronchus; here there is a larger place for the air to vibrate in, and hence a louder sound is produced.[2] A bronchus nearer the chest-wall than natural; perhaps pushed forward by a tumour or aneurism.

[1] Dr. Jeaffreson always speaks of this as 'tubular breathing.'

[2] Perhaps in some cases the condensed lung around conducts sound better.

CAVERNOUS BREATHING	CAUSE
An intensification of bronchial breathing, sounds as if air is blown in and drawn out of the stethoscope.	Air passing in and out of a cavity not of the largest kind; occasionally heard in dilated bronchi, and in circumscribed pulmonary abscess.
CEPHALIC BREATHING	CAUSE
Total cessation of breathing even for ten twenty or thirty seconds; the breathing then for about a minute becomes deep and hurried, and again ceases only to be resumed in like manner after a short time. These alternations are continuous.	Abolition of the feeling of want of breath from the system no longer taking cognizance of the impurity of the blood; decreased sensibility also of the respiratory centres to reflex stimuli, the blood not being able to excite them to action till it is very impure. This strong stimulus then causes a few inspirations to take place, and the blood again becoming a little purer, the respiratory centres sleep again till actually shaken from their slumbers by impending suffocation.
CLICK	CAUSE
A sound often heard in phthisis pulmonalis, best described by its name.	Bursting of a single air-bubble in a small cavity.
FINE, MINUTE, OR CRACKLING CREPITATION	CAUSE
A sound like that produced by rubbing a lock of hair between the fingers; or that caused by the crackling of salt, when thrown into the fire.	Bubbles of air bursting in fluid in the air-cells and intercellular passages; or separation of the adherent walls of the air-cells themselves. (?)
GURGLING OR SPLASH ON COUGH.	CAUSE
A coarser modification of large crepitation (see Large Crepitation).	Cavities, or abscess in the lung.
JERKY OR DIVIDED RESPIRATION	CAUSE
Air not drawn in smoothly, but in jerks.	Lobules not expanding synchronously owing to morbid deposit, one infiltrated lobule at first compressing another and preventing the entrance of air into it; as the

first lobule fills the pressure is taken off the second, and air then begins to enter it also. Sometimes powerful contractions of the heart cause it when the breathing is feeble, the blood being driven forcibly into the lung. Stiffening of the lung substance may perhaps cause it. (Causes not well understood.)

LARGE CREPITATION

A sound as if large air-bubbles were bursting in fluid.

CAUSE

Bubbles of air bursting in fluid in large spaces, as in the largest bronchi or in cavities.

MEDIUM CREPITATION

A sound as if medium sized air-bubbles were bursting in fluid: it is coarser than minute crepitation, and less coarse than large.

CAUSE

Bubbles of air bursting in fluid in larger spaces than the air-cells, as in the second and third divisions of the bronchial tubes.

METALLIC TINKLING

A sound like dropping a pin's head into a glass vase or metal basin.

CAUSE

Bursting of air-bells on the surface of fluid in a cavity partly filled with air. It may be caused by a drop of fluid falling to the bottom of such a cavity.

PROLONGED EXPIRATION

Expiration abnormally prolonged, even to about twice or three times the length of the inspiration.

CAUSE

Impaired elasticity of lung, or impairment of one of the expiratory forces; said by some to be owing to increased conducting power of the lung from tubercular infiltration, &c., the whole normal expiration (which is supposed to be naturally long) being then heard.

PUERILE BREATHING

Natural breathing much intensified, like the normal breathing of young children.

CAUSE

Disease affecting some part of the breathing apparatus elsewhere. It may only be nervous, the lungs being perfectly normal.

RHONCHUS	CAUSE
A low pitched sound like a snore or growl, often best heard during expiration.	Air thrown into vibrations in the larger bronchi by some constriction or narrowing of their calibre; generally caused by swollen mucous membrane, adhesion of viscid mucus to the bronchial walls, or pressure on the bronchial tubes by tumours, aneurisms, or swollen glands.

SIBILUS	CAUSE
A high pitched sound, whistling, hissing, chirping, &c.	Air thrown into vibrations in the finer bronchi by narrowing of their calibre, generally by swollen mucous membrane or viscid secretion on their walls.

Abnormal Pleural Sounds heard during Breathing, and their Causes.

CREAKING AND FRICTION	CAUSE
A superficial sound, best described by its name: it may be loud or soft, long or short, and heard during either expiration or inspiration alone; generally however it is heard during both acts, and is increased on cough and deep breathing.[1]	Surfaces of pulmonary and costal pleuræ roughened by inflammatory swelling exudation &c., rubbing on each other.

Abnormal Pulmonary Sounds heard during Speaking, and their Causes.

ÆGOPHONY	CAUSE
A trembling discordant modification of bronchophony, like the voice of Punch.	Lung partly condensed, and a thin layer of fluid effused between it and the walls of the thorax. The voice is rendered trembling either by passing through media of different densities, or by the vibrations of the effused fluid.

[1] An œdematous state of the integuments will often give rise to a pseudo friction sound. This may be diagnosed by its being heard in other parts as in the thigh, or by its ceasing when by pressure the fluid has been squeezed out from under the stethoscope. Hair under the stethoscope may also be a source of fallacy.

BRONCHOPHONY	CAUSE
A sound like that produced by talking into a loose roll of paper about three-quarters of an inch in diameter; the words heard are muffled.	Solid lung conducting the voice sounds more than natural from the bronchi (see also causes of Bronchial breathing).
PECTORILOQUY	CAUSE
A sound as if the voice articulated itself into the ear from the chest; the words spoken are distinct and ringing.	Voice vibrating in cavities not of the largest kind; occasionally heard in dilated bronchi, and circumscribed pulmonary abscess.
METALLIC VOICE AND COUGH	CAUSE
Sounds have a metallic ring, resembling those produced by speaking or coughing into a deep well.	Vibrations of air in a large cavity, or in the sac of the pleura when filled with air; same cause as that of amphoric breathing (to which refer).

Abnormal Pulmonary Sounds heard during Percussion, and their Causes.

ABNORMAL RESONANCE	CAUSE
Lung note more tympanitic than natural.	Emphysematous dilatation of air-cells, or pneumothorax; a large cavity very near the thoracic walls may cause it.
CRACKED-POT SOUND	CAUSE
A sound like that produced by crossing the palms of both hands so as to leave a hollow between them, and then striking the knuckles of the lower hand sharply against the knee.	Sudden expulsion of air from a cavity of considerable size, often best heard when the mouth is open. May occur whenever a certain quantity of air is suddenly compressed, if only it communicates with the external atmosphere.
DULNESS	CAUSE
A sound like that produced by percussing the thigh, or some solid organ.	Lung more solid than natural, or the presence of fluid or of some tumour in the thorax.

Abnormal Feelings experienced by the Auscultator during Percussion.

SENSE OF RESISTANCE DIMINISHED	CAUSE
A feeling like that experienced while percussing the stomach or intestine containing air.	Generally more air than natural contained under the part percussed; when the air is condensed the sense of resistance may not be diminished; the elasticity of the thoracic walls also affects this.

SENSE OF RESISTANCE INCREASED	CAUSE
A feeling like that experienced when the liver or thigh is percussed.	Lung more solid than natural, or the presence of fluid or of some tumour in the chest.

Abnormal Thoracic Sound heard when a Patient is Shaken, and its Cause.

SUCCUSSION	CAUSE
A splashing sound.	Air and fluid in the pleural cavity, the fluid splashing against its walls; might occur in a very large cavity in the lung.

PART II.

BRONCHITIS.

Posture.

None in particular; perhaps if the dyspnœa is urgent the patient sits propped up in bed.

Inspection.

(?)

Vocal Vibration.

Nearly normal.

Measurement.

Unaffected.

Cough.

At first dry perhaps straining, then loose and long (various).

Expectoration.

At first glairy tenacious transparent mucus, the degree of viscosity being proportionate to the degree of inflammation existing. When the inflammation commences to be resolved, the sputa become more and more mixed with opaque yellow white or greenish purulent masses; finally, the sputa having become entirely purulent, gradually diminishes in quantity and then ceases altogether. More or less froth may be mixed with the sputa in any stage owing to admixture of air from violence of the cough, and occasionally streaks of blood are present.

Physical Signs of Bronchitis in First Stage.[1]

PERCUSSION	CAUSE	AUSCULTATION
Normal or nearly so.	Narrowing of the calibre of the bronchi by inflammatory swelling of their mucous membrane, or by the adhesion to their walls of pellets of mucus.	Natural respiratory murmur masked by rhonchus and sibilus in the part affected.

Physical Signs of Bronchitis in Second Stage.

PERCUSSION	CAUSE	AUSCULTATION
Normal or nearly so.	Air-bubbles of different sizes bursting in the mucus or muco-purulent secretion of the bronchial mucous membrane.	Diffused crepitation of large and medium size over the affected part.

Resolution of Bronchitis.

The crepitation heard diminishes in amount, and the

[1] The diseases of the lungs here treated of have been arranged in stages for the convenience of teaching; but of course, in any one case, the physical signs of all the stages may be combined, according as the disease is more or less advanced in different parts of the thorax.

natural respiratory murmur reappears with perhaps a little rhonchus; finally the crepitation ceases entirely, and normal breathing is alone heard.

Most common Situation of the Disease.

Bronchitis generally commences in the upper parts of the lungs; both seem equally obnoxious to it.

Physical Signs of Plugging of a Bronchus during Bronchitis.

PERCUSSION	CAUSE	AUSCULTATION
Resonance normal over the part supplied by the obstructed bronchus.	Air prevented from entering the bronchus by a mucous plug.	Entire absence of sound on respiration, in the part of the lung supplied by the obstructed bronchus.

Result.

Collapse of the portion of the lung supplied by the obstructed bronchus. This may ultimately give some dulness on percussion, if this is not masked by the resulting emphysema.

EMPHYSEMA (VESICULAR).

Posture.

Generally dorsal; patient lies with his shoulders drawn up.

Inspection.

Chest round and barrel-shaped; respiratory movements impaired, breathing being chiefly abdominal; supraclavicular spaces are prominent and sink in on inspiration; intercostal spaces perhaps bulge and sink in slightly during breathing; heart is often seen pulsating in the epigastrium, or if only one lung is affected it is pushed over towards the opposite side.

Vocal Vibration.

Generally diminished.

Measurement.

Increased unequally from the normal size.

Physical Signs in Pure Vesicular Emphysema.

PERCUSSION	CAUSE	AUSCULTATION
Abnormally resonant, sometimes even entirely masking the heart's dulness.	Air-cells much dilated, often several united into bladder-like sacs: elasticity of lung impaired in consequence of destruction and stretching of lung tissue.	Respiratory murmur more or less feeble; inspiration perhaps a little prolonged, expiration very much so.

Cough.

Long, strained, and wheezing.

Expectoration.

None, or perhaps a little clear bronchial mucus.

Physical Signs in Vesicular Emphysema complicated with Bronchitis.

PERCUSSION	CAUSE	AUSCULTATION
Same as in pure vesicular emphysema.	Same as that of pure vesicular emphysema, plus more or less bronchitis.	Respiratory murmur more or less feeble; inspiration perhaps a little prolonged, expiration much prolonged, one or both sounds accompanied by whistling, chirping, wheezing, snoring, or medium crepitation.[1]

Cough.

Long, loose, and straining.

[1] Sometimes in emphysema minute crackling crepitation, exactly like that of pneumonia, is to be heard; this may be differentiated by there being absence of dulness on percussion, and of the sputa of pneumonia. A peculiar creaking, like a friction sound, is also sometimes heard; in this case, pleurisy can be excluded by the entire absence of any other symptoms of it.

Expectoration.

Glairy tenacious mucus mixed with more or less purulent matter, and containing many air-bubbles; the fineness of the air-bubbles depends chiefly on the difficulty of expectorating and on the length of the cough, partly perhaps on the small size of the inflamed bronchi; the sputa may be slightly streaked with blood, which has exuded from the congested mucous membrane.

Most common Situation of the Disease.

The anterior loose borders of both lungs, and their summits in front.

INTRATHORACIC TUMOURS.

The symptoms of intrathoracic tumours are so various, that only a few general hints concerning them can be here mentioned. Generally when they are present we find the part of the chest occupied by them duller than natural to percussion; and on listening over the dull spot we either find no respiratory sound at all, or else the breathing is bronchial and the voice bronchophonic from the solid body conducting sounds direct from the larger air-tubes. If the tumour is softening and breaking down there may be crepitation, or this may result from bronchitis or pneumonia set up by irritation. Conjointly with these signs in the diseased part, the breathing in the unaffected lung is often puerile. Murmurs may sometimes be heard over the tumour, from its compressing an artery and then conducting the sound thus generated to the ear; or these sounds may only be heard over the compressed vessel itself. During the growth of a tumour it may interfere with the laryngeal nerves or the trachea causing dyspnœa or laryngeal symptoms, or it may compress the œsophagus causing dysphagia, or press against and displace the heart. The thoracic duct is sometimes involved in a

tumour, and hence malnutrition results; or the mass may press upon some large vessel and cause effusion into the cavity of the thorax. Enlarged veins over the chest, cachexia, and enlarged glands in the neck and axilla, may aid a diagnosis; and the presence or absence of fever and expectoration will generally differentiate pneumonia, pleurisy, &c.

PHTHISIS PULMONALIS.

Posture.

Uncertain.

Inspection.

Infraclavicular flattening, and lessened respiratory movement on the side or sides affected; this becomes more marked as the disease advances.

Vocal Vibration.

Generally increased on the affected side, but not universally so.

Measurement.

Lessened generally on the affected side.

Physical Signs of Incipient Phthisis.[1]

PERCUSSION	CAUSE	AUSCULTATION
Resonance impaired; sense of resistance increased.[2]	Consolidation of lung from tubercular deposit.	Coarse or feeble breathing, sometimes inspiration jerky and expiration prolonged, no moist sound: voice sounds increased, and heart's sounds are heard loudly and abnormally conducted: a subclavian murmur also may be present.

[1] These tables on phthisis are almost verbatim copies of those used by the late lamented Dr. Kirkes in his lectures on medicine: they have only been rearranged.

[2] The resonance may be increased if there is a large bronchus near the surface, or if emphysema is present.

Cough.

Short, dry, and hacking; worst in the mornings.

Expectoration.

None.

Physical Signs of Confirmed Phthisis.[1]

PERCUSSION	CAUSE	AUSCULTATION
Resonance impaired, sometimes absolute dulness present; sense of resistance increased.	Consolidation from tubercular deposit, some of it softening and hence giving rise to moist sounds; small cavities may have formed.	Same as in incipient phthisis, with the addition of the moist sounds, clicking, and crepitation.

Cough.

Loose.

Expectoration.

At first bronchial (see Bronchitis); later on the sputa becomes mixed with numerous little pellets of tubercular matter.

Physical Signs of Advanced Phthisis.

PERCUSSION	CAUSE	AUSCULTATION
Dull; sometimes if a cavity is under the part percussed, a cracked-pot sound may be elicited.	Large cavities in the lungs containing air or fluid.	Cavernous breathing; large gurgling crepitation and splashing on cough; pectoriloquy, and if the cavity is very large and tense, metallic and amphoric sounds. The sounds of the heart are abnormally conducted, and often a subclavian murmur is present.[2]

[1] Dr. Kirkes used to teach, that hæmoptysis was the final step by which a case passed from incipient to confirmed phthisis. Of course, in some cases, phthisis may run its course throughout without any spitting of blood being noticed, but as a rule hæmoptysis takes place.

[2] All these signs may be present from a dilated bronchus; diagnose by general symptoms.

Cough.

Loose and various.

Expectoration.

Puriform and greyish white; often globular greyish white flocculent masses are expectorated, which assume in a dry vessel a flat circular form, remaining separate and distinct from each other (nummular sputa). If spit into water they retain their globular form, sinking or floating according to the amount of air-bubbles that they contain.[1] When the lung is rapidly breaking down, the sputa is often marbled; being composed of dirty olive green, and dirty pink masses, with more or less muco-purulent fluid.

Most common Situation of the Disease.

The apices of the lungs, said to be most common in the left.[2]

PLEURISY.

Posture.

At first on the sound side, because of the pain caused by lying on the diseased one; when effusion has taken place, the patient lies on the side where the fluid is, so as to be able to expand the working lung more fully.

Inspection.

Lessened movement on the affected side, or entire absence of it; and when great effusion has taken place, bulging of the intercostal spaces of the side affected. The heart is seen and felt beating out of its place, being pushed over towards the sound side by the effused fluid.

[1] These globular masses vary from about a quarter to half an inch in diameter.

[2] Others, and I am inclined to agree with them, state that the disease most commonly begins in the right apex.

Vocal Vibration.

Lessened or absent on the affected side, if there is much effusion.

Measurement.

Increased on the side where the effusion has taken place.

Cough.

Short and suppressed, the face becoming anxious owing to the pain caused by the movements of the inflamed pleuræ on each other.

Expectoration.

None, unless the other tissues of the lung are involved in the inflammation.

Physical Signs before Effusion has occurred.

PERCUSSION	CAUSE	AUSCULTATION
Natural, but gives patient great pain.	Surfaces of pulmonary and costal pleuræ dry and inflamed, or roughened by effused plastic lymph.	Pleural friction sound, to be heard during both inspiration and expiration; generally increased in intensity by deep breathing or cough.[1]

Physical Signs after Effusion has taken place.

PERCUSSION	CAUSE	AUSCULTATION
Absolutely dull where the fluid is; altering the posture of the patient often alters the position of the dulness, the fluid gravitating to the most dependent part. Sense of resistance much increased.	Effusion of fluid serum or pus into the pleural cavity, lung getting condensed more or less by the pressure.	Respiratory murmur very feeble or absent. If the lung is much compressed, bronchial breathing and broncophony may be heard in the upper part: when entirely collapsed, no sound at all may be heard on the affected side. During some stage of the effusion ægophony may be heard. The breathing in the unaffected lung is puerile.

[1] Friction may be heard during only one of the sounds of respiration; sometimes a creaking like a pleural friction sound is heard in emphysema, and

Resolution of Pleurisy.

In the resolution of pleurisy that has gone on to effusion, the dulness and sense of resistance to percussion gradually diminish, the naturally respiratory murmur becomes more clear, and as the two pleural surfaces approach each other the friction sound again returns; finally the pulmonary and costal pleuræ become adherent, and the friction sound ceases entirely.

Most common Situation of the Disease.

Pleurisy with large effusion generally affects the left side of the chest.[1]

EMPYÆMA.

This when uncomplicated with pneumothorax gives the same physical signs as pleurisy with large effusion (see Pleurisy).

PNEUMONIA.

Posture.

Generally dorsal.

Inspection.

Lessened movement on the affected side.

Vocal Vibration.

Increased generally on the affected side.

Measurement.

Side affected not increased.

œdematous integuments under the stethoscope will also simulate friction; in this latter case, the sound ceases when the fluid has been squeezed out from under the stethoscope, and it may also be heard in other œdematous parts, as in the thigh.

[1] Pleurisy on the right side is very often connected with phthisis.

Cough.

At first short and dry, afterwards moist and of varied duration.

Expectoration.

At first often only glairy mucus, but soon the sputa becomes typical, being tawny or rusty viscid and tenacious, the amount of viscidity signifying the intensity of the inflammation. When a patient is recovering the expectoration becomes less rusty and loses its viscidity, and finally the sputa becomes bronchial and then ceases entirely. In the third stage of pneumonia the sputa may be either like liquorice-water or plum-juice, or pure pus may be expectorated.[1]

Physical Signs in First Stage of Disease.

PERCUSSION	CAUSE	AUSCULTATION
Natural resonance diminished; sense of resistance increased.	Engorgement of lung with blood and bloody serum and commencing exudation.	Minute crackling crepitation; voice perhaps slightly increased.

Physical Signs in Second Stage of Disease.

PERCUSSION	CAUSE	AUSCULTATION
Lung absolutely dull; sense of resistance much increased.	Red hepatisation of lungs.	Bronchial breathing and bronchophony; no natural respiratory murmur, or minute crepitation; breathing in unaffected lung puerile.[2]

[1] In some cases of pneumonia there is no sputa throughout the whole of the disease (noticed especially in rheumatic pneumonia). In some cases the only expectoration is that of simple bronchitis.

[2] When the lower part alone of a lung is affected, no large bronchi being involved, there may be no bronchial breathing or bronchophony, but only dulness on percussion, and the typical sputa. When the whole of the lung is solid, so that it does not expand on breathing, there may be an entire absence of sound in it during respiration, though the voice is brochophonic, and the lung absolutely dull on percussion. Should a portion of the centre of a lung be alone affected, the surface lung being healthy, there may be no auscultatory signs of pneumonia, but only typical sputa to found a diagnosis on.

Physical Signs in Third Stage of Disease.

PERCUSSION	CAUSE	AUSCULTATION
Same as in second stage unless a large cavity is formed near the surface, when it may be naturally resonant or even abnormally so.	Lung in a state of grey hepatisation softening, parts are expectorated leaving cavities.[1]	Large gurgling crepitation, cavernous breathing, pectoliloquy or modified bronchophony.

Resolution of Pneumonia.

In the resolution of pneumonia that has gone on to consolidation, the breathing becomes less bronchial, the voice less resonant, and crepitation (not of the very finest kind) is again to be heard. This crepitation then becomes mixed with some natural respiratory murmur, and finally the crepitation ceases entirely, and natural breathing alone is to be heard. The lung also becomes more and more resonant to percussion, the sense of resistance diminishes, and finally the lung resumes its normal state.

Most common Situation of the Disease.

Pneumonia most commonly attacks the lower lobes of the lungs, especially the right lower lobe.[2]

PNEUMOTHORAX.

Posture.

(?)

Inspection.

Little or no movement on affected side, which is fuller than natural.

[1] Dr. Bennett considers that in every case of pneumonia the lung passes into and through the stage of grey hepatisation, the exuded matter becoming purulent, and then being either expectorated, or disintegrated and finally excreted as urates. (Of course, in this case, the lung does not break down into cavities, and so only the auscultatory signs of the second stage will be present.)

[2] Asthenic pneumonia is apt to attack the upper lobes.

Vocal Vibration.

Absent on affected side.

Measurement.

Increased on affected side.

Physical Signs of Pneumothorax.

PERCUSSION	CAUSE	AUSCULTATION
Resonance tympanitic; sense of resistance not increased.	Pleural cavity filled with air.	Amphoric breathing cough and voice; respiratory murmur feeble or absent.[1]

Physical Signs of Pneumothorax with Empyœma.

PERCUSSION	CAUSE	AUSCULTATION
Tympanic resonance in upper part, dull below and sense of resistance increased; if the position of the patient is altered, the dulness is always in the most depending part.	Pleural cavity filled with air and purulent fluid.	Amphoric breathing cough and voice; metallic tinkling and succussion of the patient is shaken.

Cough.

(?)

Expectoration.

Various; if there is an opening from the pleural cavity into a bronchus, the patient may expectorate much pure pus when lying in certain positions.

[1] Amphoric sounds may often be heard in large vomicæ in cases of phthisis.

CHAPTER XIII.

DISEASES OF THE HEART.

PART I.—ENDOCARDIAL MURMURS.
PART II.—PERICARDITIS.
PART III.—ANEURISMS.

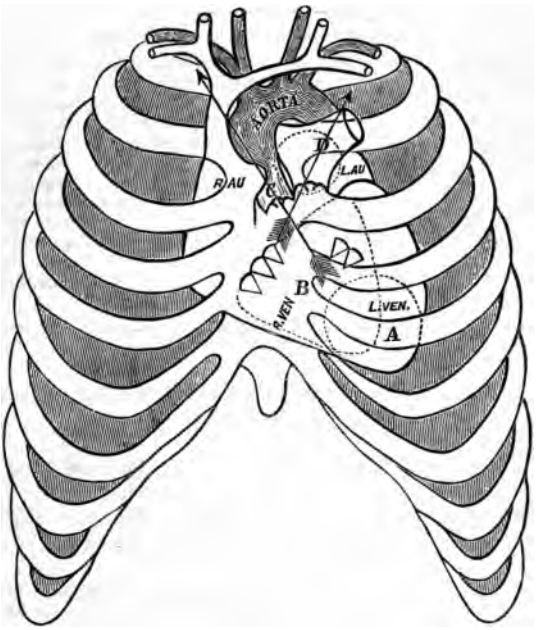


DIAGRAM OF HEART IN SITU.
(Modified from Holden and Aitken.)

A Dotted circle, showing area of mitral murmurs.
B Dotted triangle, showing area of tricuspid murmurs.
C Arrow, showing line of transmission of aortic murmurs.
D Arrow, showing line of transmission of pulmonary murmurs, passing through the dotted circle indicating their area.
R. AU. Right auricle.
R. VEN. Right ventricle.
L. AU. Left auricle.
L. VEN. Left ventricle.

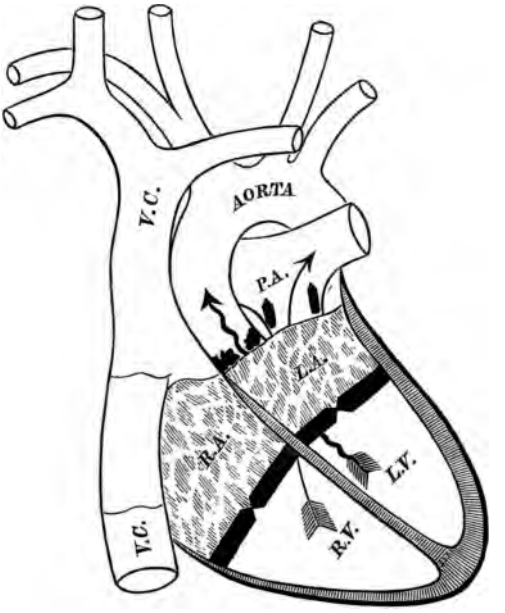


DIAGRAM OF AORTIC CONSTRICTION.[1]

Aortic Constriction.

AUSCULTATION	CAUSE
Systolic murmur loudest at base and second right cartilage; faint if audible at second left ditto.	Obstruction at the aortic orifice to the onward current of blood.

[1] The word constriction is only used here in the sense that the normal orifice of the aorta is in some way more or less narrowed; of course the smallest vegetation would affect this sufficiently to throw the blood into abnormal vibrations.

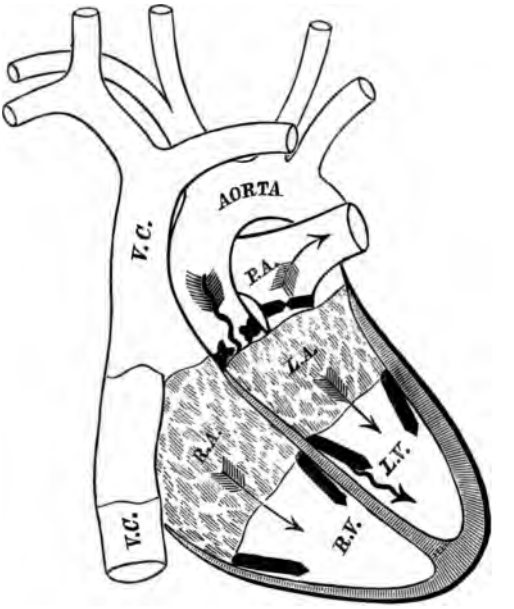


DIAGRAM OF AORTIC REGURGITATION.

Aortic Regurgitation.

AUSCULTATION	CAUSE
Diastolic murmur loudest at base and second right cartilage; heard loudly downwards along right side of sternum.	Imperfect closure of the aortic valves, permitting regurgitation into the left ventricle.

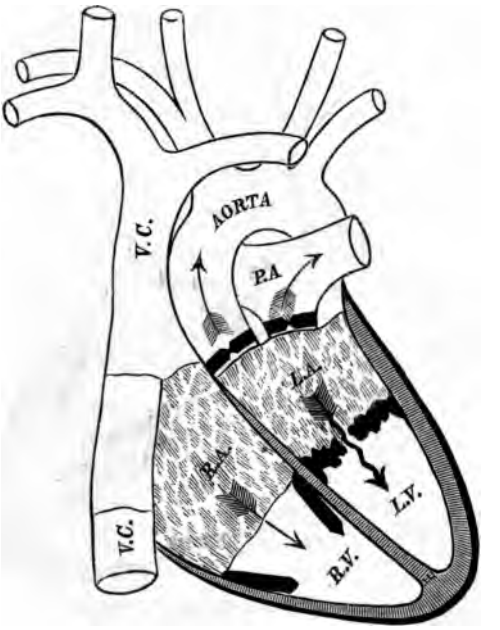


DIAGRAM OF MITRAL CONSTRICTION.

Mitral Constriction.

AUSCULTATION	CAUSE
Pre-systolic murmur loudest at, above, or outside of left apex.	A contracted mitral orifice causing obstruction to the blood passing from the left auricle to the left ventricle; or imperfect closure of the mitral valves at the *very commencement* of the systole.

RIGHT HEART.

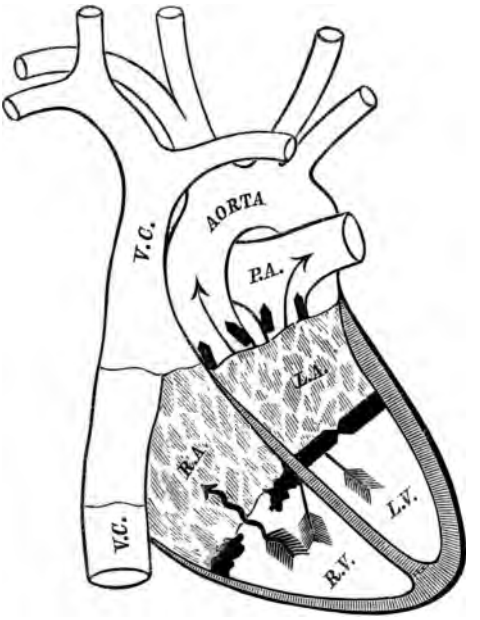


DIAGRAM OF TRICUSPID REGURGITATION.

Tricuspid Regurgitation.

AUSCULTATION	CAUSE
Systolic murmur loudest at, or above the ensiform cartilage; loud over the right ventricle, fading in other directions.	Imperfect closure of the tricuspid valves, permitting regurgitation into the right auricle.

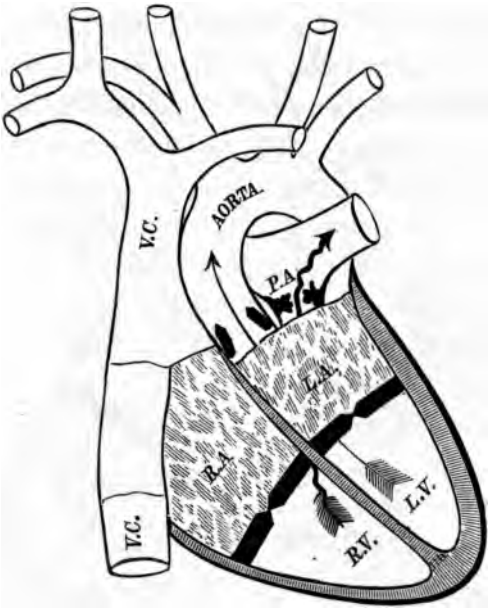


DIAGRAM OF PULMONIC CONSTRICTION.

Pulmonic Constriction.

AUSCULTATION	CAUSE
Systolic murmur loudest at base and at second left cartilage; faint at second right ditto.	Obstruction at the pulmonary orifice to the onward current of blood.

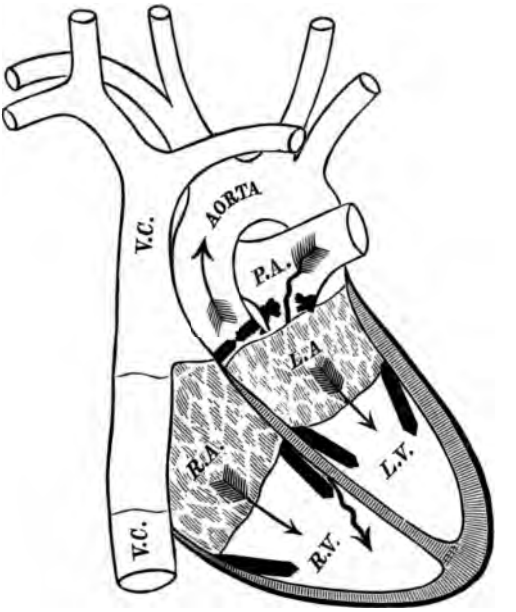


DIAGRAM OF PULMONIC REGURGITATION.

Pulmonic Regurgitation.

AUSCULTATION	CAUSE
Diastolic murmur loudest at base; heard at second left cartilage, inaudible or faint at second right ditto.	Imperfect closure of the pulmonary valves, permitting regurgitation into the right ventricle.

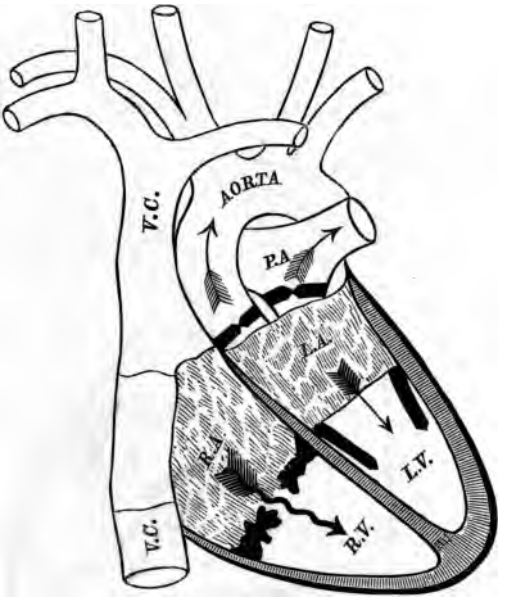


DIAGRAM OF TRICUSPID CONSTRICTION.

Tricuspid Constriction.

AUSCULTATION	CAUSE
Pre-systolic murmur loudest at and about the ensiform cartilage, and over the right ventricle.	A contracted tricuspid orifice causing obstruction to the blood passing from the right auricle to the right ventricle; or imperfect closure of the tricuspid valves at the *very commencement* of the systole.

Murmurs generated in the Aorta.

AUSCULTATION	CAUSE
Systolic murmur loudest in the aortic track; less loud at the aortic valves.	Roughening of the coats of the aorta; tumours narrowing its calibre; aneurisms.

Murmurs generated in the Pulmonary Artery.

AUSCULTATION	CAUSE
Systolic murmur loudest under left clavicle; less loud at pulmonary valves.	Generally constriction of the pulmonary artery; might arise from roughening of its coats, or pressure narrowing its calibre.

PART II.

PERICARDITIS.

Physical Signs of Pericarditis in First Stage.

PERCUSSION	CAUSE	AUSCULTATION
Normal.	Contiguous surfaces of the pericardium dry and inflamed, or roughened by effused plastic lymph.	Single or double friction sound, heard even when the breath is held. In the very earliest stage of pericarditis there is no friction, but the heart's sounds are cantering.

Physical Signs of Pericarditis in Second Stage.

PERCUSSION	CAUSE	AUSCULTATION
Area of heart's dulness increased in proportion to the amount of effused fluid; sense of resistance much increased.	Fluid in greater or less quantity in the sac of the pericardium.	Heart's sounds very feeble and distant. Perhaps a friction sound may be heard at the attachment of the large arteries, or a churning sound may be heard.

Resolution of Pericarditis.

The effused fluid becomes gradually absorbed, and as this takes place the heart's sounds become less distant, the dulness to percussion diminishes, and friction is again heard. After a time this latter sound also vanishes, the surfaces of the pericardium having become adherent, but there is generally left behind a greater area of dulness than existed in the normal state.

PART III.

ANEURISM.

In advanced cases of aneurism we find a prominent swelling somewhere over the track of an artery; which pulsates, is dull to percussion, and often yields a single or double murmur to auscultation.

In less advanced cases the only sign found is sometimes a little abnormal dulness over some large artery, or as frequently happens auscultation alone discloses absolutely nothing wrong. While endeavouring to arrive at a correct diagnosis under these circumstances, it is necessary to remember that those parts lying in the tracks of the large arteries, are the ones most likely to show symptoms of disorder; thus the laryngeal nerves, trachea, œsophagus, thoracic duct, and bronchi, are all likely to be compressed, or the spinal column may be eaten into, and hence pains along the spinal nerves result. Ringing cough, aphonia or spasm of the larynx, dyspnœa, hæmoptysis, dysphagia, wasting, and bronchial breathing, are in consequence of the enlargement of the tumour all likely to arise; and unequal radial pulses, and dilated pupil on one side, are also not uncommon symptoms.[1]

[1] To enter deeper into this subject would be out of place in this work; but enough has been already said to point out the principal things to be enquired into, when an aneurism is suspected.

CHAPTER XIV.

ABNORMAL STATES OF THE BLOOD.

In leucocythemia the white cells of the blood are greatly increased in number.[1] Virchow, under this head, speaks of a splenic kind, *leukæmia*, in which the white cells are large, perfectly developed, and contain one or more nuclei; and of a lymphatic form, *leucocytosis*, in which the white cells are small, the cell wall closely embracing a single sharply defined somewhat granular nucleus. In erysipelas the white cells are also increased in quantity. In anæmia there are fewer red blood-cells than natural, and even those remaining are pallid. In piarrhæmia the blood contains a large quantity of fat globules and molecular granules.[2] In purpura the shape of the red blood-cells is altered; and in gout and rheumatism they are said to be poor in colouring matter.

[1] It should be remembered that a physiological leucocythemia occurs after digestion.

[2] This state of blood occurs also physiologically after digestion, and during pregnancy, lactation, &c.

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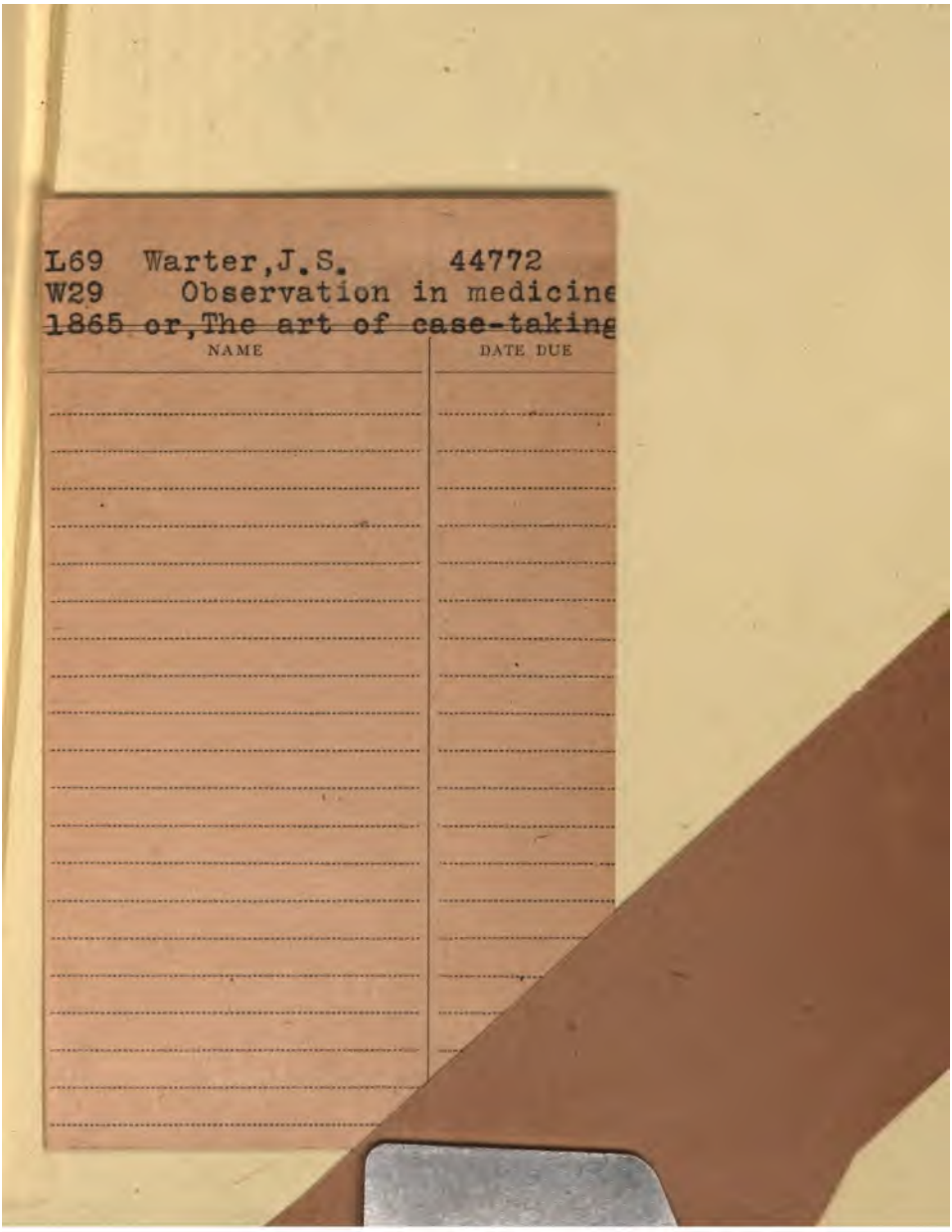
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